Job stress and satisfaction among hospital consultants : associations with psychiatric morbidity and burnout

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Abstract

Concerns exist about the mental health of doctors, lending urgency to the need to identify causal factors which will inform strategies to improve their mental health. This thesis comprised an investigation of aspects of the work of hospital consultants perceived as stressful and satisfying, an assessment of the prevalence of psychiatric morbidity and burnout in the current working population of consultants, and an exploration of the relationships between job stress and satisfaction and these indicators of poor mental health.

Participants were consultants from four specialties: surgery, gastroenterology, radiology and oncology, chosen to represent a range of the different demands made of hospital consultants. Preliminary work involved in-depth interviews with a small sample of consultants to derive detailed data on sources of stress and satisfaction arising form their work. From this, instruments to assess sources of job stress and satisfaction among hospital consultants were developed. The main study comprised a cross-sectional questionnaire survey to examine the importance of these identified sources of stress and satisfaction for hospital consultants nationally and to assess the prevalence of psychiatric morbidity and burnout in this occupational group.

Preliminary interviews with 21 consultants identified 25 sources of job stress and 17 sources of job satisfaction which were important for consultants across the four specialties. In the main survey, 882 out of 1133 consultants returned questionnaires (78%). Principal components analysis of their ratings of the importance of the sources of job stress indicated four stress factors were predominant for consultants currently: work overload and its effect on home life, poor management and resourcing, managerial responsibilities, and dealing with patients' suffering. Regression analysis indicated experiencing stress from these aspects of work was associated with psychiatric morbidity and burnout. Three predominant sources of job satisfaction were identified in the same way: interpersonal relationships; opportunities for personal and professional development, and management/resourcing. Experiencing satisfaction from these aspects of work was associated with lower psychiatric morbidity and burnout. Experiencing high levels of job satisfaction from work overall appeared to protect consultants experiencing high levels of job stress from developing psychiatric morbidity.

This study has identified the specific aspects of the consultants' role perceived by them as contributing to their job stress and satisfaction. While it can be difficult to reduce some of the sources of stress intrinsic to the role of hospital consultants, such as the challenges of working with patients, these data indicate an alternative approach can be taken to protect consultants' mental health against the high demands of medical practice, namely through maintaining or enhancing their job satisfaction.

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CHAPTER 1: Introduction

Doctors often describe their work as stressful, with major sources of stress being reported as overwork, involvement with death and suffering, making decisions where mistakes have severe consequences and conflicts between work and home life. In the UK the suicide rate for medical practitioners is approximately twice the national average (Charlton, Kelly, Dunnell, Evans, & Jenkins, 1993). While this represents an extreme endpoint of poor mental health, doctors have also been found to experience a greater prevalence of psychiatric morbidity than the general population (Wall *et al.*, 1997). In addition, doctors, alongside other professionals who deal with others' physical, psychological or social problems, are thought to be at increased risk of burnout, a syndrome of work-related distress involving a combination of emotional exhaustion, treating people in an unfeeling, impersonal way (depersonalisation) and a sense of low personal accomplishment.

Until very recently, research on stress in doctors has focussed mainly on those at a junior level. Before the last few years there had been no studies of poor mental health among hospital consultants and the idea that these most senior hospital doctors may be at risk did not even appear in the literature. Studies of junior doctors have found that around a third suffer clinically significant psychiatric morbidity at any one time. This degree of psychiatric morbidity is seen as a cause for concern, but perhaps not unexpected among this group of young professionals, who work extremely long hours and are under pressure to prove themselves in a challenging profession. Doctors at consultant level, having succeeded in reaching the top level and being presumably a survivor population, have not been perceived historically as being at risk of poor mental health. In recent years, however, pressure on consultants appears to have increased, with the focus on performance standards in the wake of the Bristol enquiry and the introduction of clinical governance bringing with it responsibility to account for and improve the quality of care (Department of Health, 1998a). The introduction of commercial pressures to the NHS over the last ten years has also eroded the high level of autonomy consultants' previously had over their work and required their involvement to a greater extent than before in managerial and financial activities. Further, the introduction of the Patients' Charter (Department of Health, 1991) has made clear to patients the rights they have to treatment and as a result patients have become more vociferous in demanding these in recent years.

Consultants are a valuable and expensive component of the NHS workforce. In recent years there has been an increase in the numbers of consultants retiring early (Medical Workforce Standing Advisory Committee, 1997). The retirement of these most senior hospital doctors results in a loss of skills and experience for the profession, is costly in

terms of training younger doctors to replace them and is of particular concern in specialties such as radiology in which there is currently a manpower shortage. The exposure of consultants to a high risk of burnout and psychiatric morbidity is of concern therefore not only because it involves the ongoing personal suffering of doctors and their families, but also because it is likely to be a factor in consultants' choosing to retire early. Further, it may constitute a threat to the quality of patient care consultants deliver. These reasons highlight the need for research to assess the extent of mental health problems among hospital consultants and to search for ways to reduce it.

Current models conceive stress as a process in which environmental demands are perceived as exceeding the resources the individual has to deal with them, resulting in physical and psychological changes which may cause the individual to be at risk of disease (Cohen, Kessler, & Underwood Gordon, 1995). In spite of enormous research interest in the subject over the last fifty years there is still confusion over which are the important individual and environmental variables in the experience of stress. This has largely resulted from stress research being often methodologically weak and based on idiosyncratic approaches. In recent years, with the development of standardised instruments to measure poor mental health and psychometrically robust methods for developing instruments to assess environmental variables, the technology now exists to enable investigation of the stress process in a more systematic way.

Sources of stress in the occupational environment have often been assessed and associations found with poor mental health among diverse occupational groups. The accurate identification of those aspects of work which are perceived by consultants as contributing to the stress they experience through the performance of their role will provide one approach for action to improve consultants' mental health. Opportunities for reducing burnout and psychiatric morbidity among doctors through reducing the stress they experience at work may be limited, however, in that some sources of stress, such as being involved with the physical suffering of patients are for the most part inherent to the practice of medicine.

While the role of the doctor is without doubt stressful, the dividends of the job could be viewed as being potentially great, derived, for example, from working in a profession which carries high status and which enables doctors to contribute significantly to improving peoples' lives. Aspects of the doctors' role which could be experienced as satisfying have attracted hardly any research interest, however. Yet in such a potentially satisfying role as that of doctor, this satisfaction could potentially act as a buffer against the stresses of medical practice. Individuals in general may be much more able to tolerate a highly demanding role if it's performance also provides them with a high degree of satisfaction. If it could be shown that the satisfaction doctors derive from their work protects them from

developing burnout or psychiatric morbidity then this could provide an approach, in addition to trying to reduce their stress, for reducing the extent of mental ill health in the profession.

There have been major changes to the role of hospital consultant in the last ten years, but medical training has not yet had time to adapt to these changes. Doctors who feel insufficiently trained in some of the more general skills they require to practise modern medicine, such as communication and management skills, may be at greater risk of poor mental health than colleagues who feel their training in these skills has been sufficient. For example, having to break the news of a cancer diagnosis to a patient is an aspect of the consultants' role that could be potentially very stressful to a consultant who felt ill-equipped to deal with the patients' likely emotional reaction. Such a situation may be experienced as relatively less stressful by a consultant who believed he or she would be able to convey the news to the patient in a compassionate manner and deal appropriately with the patients' emotional reaction. The extent to which training is a factor in the development of poor mental health among consultants had not yet been examined.

This study provides a comprehensive exploration of sources of job stress and job satisfaction for hospital consultants and estimates the prevalence of burnout and psychiatric morbidity among this group. Relationships between consultants' mental health and their job stress and satisfaction are examined, hypothesising that consultants reporting high levels of stress will have a higher prevalence of poor mental health than those who experience low levels. Negative associations are hypothesised to occur between psychiatric morbidity and burnout and consultants' levels of job satisfaction; those with higher job satisfaction being hypothesised to have better mental health. Whether or not there is an interactive effect of job stress and satisfaction on consultants' mental health will be investigated, with job satisfaction being hypothesised to buffer the harmful effects of job stress on consultants' mental health.

Chapter 2 examines theories of job stress and job satisfaction and includes a review of research to date on the aspects of work identified by doctors as stressful and satisfying. Chapter 3 discusses mental ill-health, pervasive, in the form of psychiatric morbidity, and specifically work-related, in the form of burnout. The concept of burnout is discussed in detail, including definitions, theories and its validity as a type of poor mental health distinct from more pervasive psychiatric morbidity. The measurement of psychiatric morbidity and burnout are discussed. Chapter 4 reviews the literature on the levels of burnout and psychiatric morbidity reported among consultants and other doctors and compares the extent of poor mental health among doctors with that found among some other occupational groups. Personal characteristics of doctors found to confer vulnerability to poor mental health are also reviewed. Chapter 5 presents the rationale for the current

study, along with its aims and specific hypotheses. Chapter 6 describes the process used in the study to develop questionnaires to measure the aspects of work consultants perceive as contributing to the stress and satisfaction they experience in the performance of their role. Chapter 7 provides a description of the methodology used to carry out the main postal questionnaire survey. Chapters 8 to 10 present the results of this survey. Chapter 8 describes consultants' ratings of what are the important sources of job stress and job satisfaction for them in their work currently. Chapter 9 presents data indicating the extent of poor mental health among the sample of hospital consultants and examines associations with consultants' job and demographic characteristics and their ratings of job stress and satisfaction. Chapter 10 contains a more detailed investigation of the relationships between consultants' mental health and the stress and satisfaction they experience through their work. Chapter 11 summarises what has been found in this study, and its implications for reducing poor mental health among hospital consultants in the UK.

CHAPTER 2: Job stress and job satisfaction

This chapter will start broadly, looking at definitions of job stress and models of how stress is experienced by individuals. It will then focus down on an examination of how models of stress have been found to describe the experience of job stress among doctors. The first part of the chapter will end with an examination of aspects of the doctor's role which have been identified by doctors as contributing to the stress they experience through the performance of their work.

While negative experiences arising from the performance of one's work have received a great deal of theoretical and empirical attention, the same can not be said for positive experiences. The potentially harmful effects of stress at work for both the incumbent and the organisation have provided the motivation for its investigation. Yet if stress at work might influence the mental well-being of incumbents, then it appears feasible that positive work experiences also could potentially do so. This possibility has been little explored, however. The second part of the chapter will examine job satisfaction, this relatively neglected variable at work. Again there will be coverage of general definitions and aspects of work identified by doctors as contributing to the satisfaction they experience through the performance of their work, along with a discussion of the possible ways in which job stress and satisfaction may relate to each other, and to an individual's mental health.

2.1 Job stress

2.1.1 Definitions

The term "stress" is problematic in that its definition is unclear. As Cox 1978 remarks, "it is a concept which is familiar to both layman and professional alike; it is understood by all when used in a general context, but very few when a more precise account is required" (Cox, 1978; p1). This confusion arose historically from stress being defined in conflicting ways, most notably as both a stimulus and a response. The situation continues today, however, even though the limitations of definitions of stress as either a stimulus or a response are clear and an interactional definition is widely accepted, largely through the term continuing to be used to describe either a source of stress or a response to it. The confusion has been exacerbated by the enormous interest shown in the concept from diverse disciplines including biology, psychology, psychiatry, medicine, physiology and pharmacology, each area of research approaching the question at a different level and using different methodology. In spite of all the research interest, the experience of stress, the process by which it occurs and the consequences for the individual for experiencing stress through their work remain largely unclear.

Stress has been conceptualised in three ways, as a stimulus, a response, and as an interaction.

Stress as a stimulus

According to this framework, stress is perceived as characteristic of certain environmental conditions, in that these conditions will usually result in a stress reaction. It arises from the field if engineering, where external forces are seen to exert pressure on an individual system, which may result in strain on that system, depending on the intensity of the pressure and the make up of the individual. The most well known advocates of this idea are Holmes and Rahe (Holmes & Rahe, 1967), who have produced a checklist of life events which have been assigned a rating according to the degree to which they are likely to induce stress. Research continues to be carried out based on this framework of stress. For example, a recent review of studies examining the relationship between stressful life events and onset of cancer includes a number of studies which look at specific environmental stressors, such as the death of a child, taking no account of the individual's perception of this source of stress (Petticrew, Fraser, & Regan, 1999). The major criticism of this framework is that it is an over-simplification, in that the assignation of an aspect of the environment as stress-inducing does not take into account the variability of individual experience. Certainly many individuals will experience a similar response to certain life events, such as bereavement, but taking this to the extreme, as is the case with this model, is insufficient to account for the diversity of human experience.

Stress as a response

This approach conceptualises stress as an the response of the individual to a disturbing stimulus. It originated in the work of Walter Cannon (1932) who provided data to demonstrate that humans and animals work to keep their internal environment constant in the face of external changes, a process he described as homeostasis. Cannon described detecting physiological changes which he perceived as attempts to maintain homeostasis, such as adrenalin secretion when individuals were exposed to cold. He described individuals in this situation as being under stress. Stress is therefore by this conceptualisation an intangible, abstract phenomenon, which is inferred to be occurring through measurement of observable, usually physiological, responses.

Selye (Selye, 1946; Selye, 1956) took these individual physiological changes which occurred in response to a wide range of damaging or alarming stimuli as evidence of a single coordinated stress response, which he called a General Adaptation Syndrome. Selye proposed this comprised three stages. First, the alarm reaction, consisting of initial shock followed by activation of the individual's defence mechanisms, otherwise know as the "fight or flight" response. Second, resistance, in which the defence mechanisms will if successful, return the individual to a state of equilibrium. If this second stage fails, however, or the energy required to maintain the individual's defences becomes depleted, the third stage of exhaustion or collapse will follow.

The response-based conceptualisation of stress has been criticised as simplistic on several counts. The idea that there is a non-specific response to aversive stimuli, a fundamental assumption of this model, has been challenged, in that it has been shown that there are different physiological responses to different types of aversive stimuli (Cox, 1985). In addition, this model takes no account whatsoever of psychological factors such as personality or the individual's perception of the source of stress (Cox, 1978). A more fundamental problem is the inherent circularity in this conceptualisation of stress, in that, for example, an individual is seen as having a raised heart rate because they are experiencing stress, and being described as being under stress because their heart rate is raised. These criticisms have resulted in this conceptualisation being perceived widely as insufficient to explain the stress process.

Stress as an interaction

The previous approaches are reductionist in approach, both representing stress as a stimulus-response process and viewing the individual as a passive recipient of environmental stimuli. Research based on these models has not provided data which can adequately explain stress in human beings (Cox, 1978). In addition to this, as there was movement in psychology away from the behaviourist thinking of the early part of the century towards a more humanistic approach of Carl Rogers and George Kelly, the general conceptualisation of stress changed to one which drew on these initial ideas, but took far greater account of the perceptions of the individual.

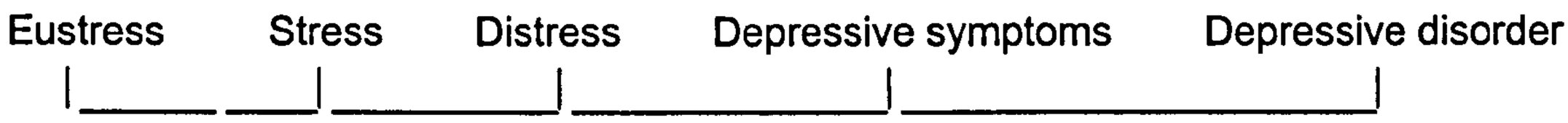
Lazarus has provided one of the most well-known conceptualisations of stress within this framework. According to his definition, stress is experienced when the perceived demands of the environment exceed the individual's perception of the resources he or she has to meet those demands (Lazarus & Folkman, 1984). A very similar view of the stress process was presented by McGrath, and held by other researchers known as the "Michigan School", who proposed that aspects of the work environment may give rise to perceived stress, which is defined as a perceived substantial imbalance between demands and response capability, under conditions where failure to meet those demands has important perceived consequences (McGrath, 1970).

In this country, Tom Cox and colleagues also rejected the idea of stress as purely pressure from the environment or physiological responses, but was "part of a complex and dynamic system of transaction between the person and his environment" (Cox, 1978; p 18). Cox conceived the dynamic system of transaction as having five stages. First environmental demands, which can be external or internal psychological or physiological needs. Second, the individual's perception of those demands and of his or her ability to cope with them. Stress is conceptualised by Cox as occurring "when there is an imbalance between the perceived demand and the person's perception of his capacity to meet that

demand" (Cox, 1978; p 18). The third stage is the response to this imbalance, involving the subjective experience of stress and cognitive and behavioural attempts to alleviate the stressful situation. The fourth stage involves the individual anticipating the outcome of the attempts to alleviate the stressful situation and the fifth stage is feedback between all the stages occurring on an ongoing basis. Cox therefore defines stress as an imbalance between demand, both external and internal, and capacity in meeting demand, when coping is important (Cox, 1978).

In this thesis the term "stress" will be used to describe an individual experiencing psychological or physiological disturbance as a result of their perception that the demands of the environment exceed their perception of the resources they have to meet those demands (Cox, 1985). The experience of stress will be perceived as forming a point on a continuum of psychological states, based on Selye's conception (Selye, 1956) and adapted by Weinberg (Weinberg, 1999). Stress is located in a position between normal mood at one end of the continuum and depressive disorder at the other (figure 2.1).

Figure 2.1- *Continuum of psychological states (Weinberg, 1999)*



The point furthest to the left on this continuum represents normal mood, also termed eustress, where an individual experiences satisfaction and well-being from meeting the demands of the situation. At the next point, an individual experiences some psychological discomfort, ie stress, because of a perceived inability to meet the demands of the situation. The next point along the continuum represents distress, where an individual experiences some more serious symptoms of psychological impairment because of a temporary inability to cope with the demands of the situation, perhaps after a threatening life experience such as a bereavement. Where an individual is often exhausted, weary and disturbed by negative emotions and the ability to cope with life is not regained, the individual is experiencing depressive symptoms. At the far right of on the continuum the individual is experiencing depressive symptoms of sufficient severity and duration that a clinical diagnosis of depressive disorder is assigned. This degree of emotional suffering usually requires the intervention of a psychiatrist or psychologist.

This conceptualisation of stress coincides with popular usage and understanding of the term, with people describing themselves as "under stress" or "stressed out" as they recognise their inability to cope with the demands of their work situation and experience discomfort. Aspects of the environment perceived as causing or contributing to this state

of stress will be termed "sources of stress". This terminology is used, for example, by Warr and Wall (1975). It is chosen over an alternative terminology, where "stressor" is used to describe an aspect of the environment and "strain" to refer to the affective reaction of the individual to it, on the grounds that the former descriptors are more frequently used and more widely understood in the medical literature (Payne, 1999).

2.1.2 Models of job stress

Interactional models of stress generally have within them three basic elements:

- Aspects of the environment, such as workload, or, more usually, the individual's appraisal of sources of stress in the work environment
- Features of the individual, such as personality traits, and methods of coping with stress
- Outcomes resulting from the individual experiencing stress, such impaired physical or mental health.

There remains disagreement, however, over the mechanisms by which these basic elements are interrelated. Generally it is perceived that stress appraisals lead to negative outcomes, but the way in which individual factors influence this relationship is unclear. Some models present stress appraisals as predicting outcomes through the mediating effect of personality variables and coping (Edwards & Baglioni, 1990; Hurrell, Nelson, & Simmons, 1998; Warr & Wall, 1975), while others perceive individual factors such as personality as the antecedents of the experience of stress, with the associations between stress and outcomes mediated by stress appraisals and coping (Jerusalem, 1993). The literature is in agreement that these basic elements are important, but further work is required to identify the paths of causality or association between these variables.

Disagreement also exists over which aspects of the basic elements of the stress process are important, in particular, which aspects of the individual confer vulnerability to poor mental health. Personality variables which have frequently been investigated as vulnerability factors for experiencing stress or developing poor mental health include Type A "stress prone" personality, locus of control, hardiness, and negative affectivity, but these variables generally only explain a small amount of the variance in stress outcomes (Cooper, Rout, & Faragher, 1989; Sutherland & Cooper, 1993; Chen & Spector, 1991). Coping, the cognitive and behavioural efforts individuals make to meet demands perceived as exceeding their personal resources (Lazarus & Folkman, 1984), has been found to influence their mental health both directly and through buffering the harmful effects of stress (Begley, 1998), (Alloway & Bebbington, 1987), (Endler & Parker, 1990; Kirkcaldy, Cooper, & Brown, 1995; Tattersall, Bennett, & Pugh, 1999; Hepburn, Loughlin, & Barling, 1997). An enormous range of different methods of coping has been

investigated, such as positive reinterpretation, use of alcohol and drugs, social support, time management, problem solving, distraction, blaming oneself, wishful thinking and avoidance (Begley, 1998; Rowe, 1997; Tattersall *et al.*, 1999). A distinction has been made between coping which is perceived as adaptive, for example talking to a colleague, and that which is maladaptive, such as binge drinking or avoiding the situation (Cooper, Cooper, & Eaker, 1988a). There is some evidence to suggest this distinction is meaningful, with clear evidence that social support has a positive effect on mental health (Cohen & Ashby Wills, 1985), while coping using emotion-focused strategies is often associated with poorer mental health (Edwards & Baglioni, 1990). But overall it is clear that few judgements can be made about the global importance of a particular way of coping or personality characteristic for the development of poor mental health, and where these relationships have been found reliably, the amount of variance explained in small.

With regard to factors in the workplace which are perceived as sources of stress, there is a long history of epidemiological research investigating links between life stress and disease, based on checklists of life events given a particular severity rating, of which the most well-know is that developed by Holmes and Rahe (1967). Based on this approach, typologies have been developed of work characteristics hypothesised to be associated with the mental health of job-holders. Several models have been prominent over the last twenty-five years. Hackman and Oldham's (1976) job characteristics model specifies five core characteristics of jobs which are important, namely that the job requires a range of skills, involves the worker in whole tasks, that the job has an impact on other people, that the worker has autonomy over the work and that the job provides feedback on how the worker is performing. Karasek's job strain model (Karasek, 1979) proposes that both the demands made of the individual by their job and the degree of control they have over their tasks and conduct during the working day are important for workers' mental health. A high strain job is defined as one in which the individual is subject to high demands over which he or she has little control, and this combination of characteristics is hypothesised as being the most likely to result in negative health outcomes. Subsequent work has added in a third aspect of work as being important, in the form of social support, with low social support hypothesised to increase the likelihood of negative health outcomes (Karasek & Theorell, 1990). These job characteristics, along with salary and safety, also form part of Warr's Vitamin Model of the way in which work influences mental health (Warr, 1987). Here job characteristics are conceptualised as having an effect on individual well-being in the same way as vitamins affect physical health, with certain job characteristics up to a certain level seen as being likely to have a positive effect on mental health, while above that level they may be harmful (Warr, 1987). Cooper's model of the literature of occupational sources of stress identifies six general characteristics of work which are important for mental health, namely factors relating to the specific job, the individual's role in the organisation, relationships at work, career development, organisational structure

and climate and home-work interface (Cooper & Marshall, 1976).

Over the years research has clearly demonstrated generally positive relationships between poor mental health and the factors identified as important by these models (De Jonge & Schaufeli, 1998; Kristensen, 1995; Loher, Noe, Moeller, & Fitzgerald, 1985; Rees & Cooper, 1992; Swanson, Power, & Simpson, 1996; Sutherland & Cooper, 1992; Wall, Jackson, Mullarkey, & Parker, 1996) and all three models have remained prominent. Karasek's job strain model has without doubt generated the greatest volume of research activity and the characteristics of job demands, control and social support have certainly been confirmed as important variables for maintaining well-being at work. The area of doubt currently is whether the interaction between these variables is as important as the model hypothesises. Quite a number of studies, discussed by (Wall *et al.*, 1996), have failed to find the expected interactive effects, though it has been argued that this may be the result of inadequate specification and measurement of the variables. The rather narrow focus of this model, in addition, is perhaps a factor in its failure to explain large amounts of the variance in negative health outcomes. Partial support for Warr's vitamin-type model of the relationships between job characteristics and mental health has been provided, with some non-linear relationships being identified between three of the job characteristics and three measures of emotional well-being (De Jonge & Schaufeli, 1998). However, this model has not been taken up and tested to any great degree, particularly outside the domain of organisational psychology. Cooper's model of the job characteristics important for mental health has been used to guide research into sources of stress at work across a wider range of occupational groups in this country, and has been shown to be relevant for NHS staff in particular (Rees & Cooper, 1992) and doctors specifically (Sutherland & Cooper, 1993; Swanson *et al.*, 1996).

There is certainly a degree of overlap in the aspects of work perceived as important by these models, though by no means do they entirely concur. Overall, though, it is clear that some judgements can be made about the global importance of particular aspects of the work environment for the development of poor mental health. However, these general factors usually only explain a small proportion of the variance in mental health outcomes, suggesting that there are likely to be, in addition to these general factors, specific variables, which are likely to vary across occupations or organisational situations.

Culturally, in this country stress is largely perceived as something which should be dealt with by the individual experiencing it. Magazine, newspaper articles and self-help books exhort us to make a myriad changes to our lifestyles to reduce stress, while there is a flourishing industry of practitioners offering treatments for the symptoms of stress. In the occupational setting, when individuals suffer distress or depression, which they perceive is the result of stress experienced in the performance of their role, the outcome is often

to take extended sick leave, perhaps retire on medical grounds, or simply resign. Far more rarely is the focus to make changes to the role to make it less likely to lead to negative health outcomes. The disparate range of people who suffer poor mental health at work suggests however that the search for causal factors be switched away from the individuals themselves toward perceived situational factors. As Maslach and Jackson put it in 1982 "We have reached the point where the number of rotten apples in the barrel warrants examination of the barrel itself" (p232).

There are a number of other imperatives to organisations taking a greater interest in examining the extent to which work roles cause their employees stress. These imperatives are the consideration that employee stress may be costly financially through staff taking increased sick leave, may harm organisational effectiveness through reduced productivity and increased turnover, and recognition that employers have a legal obligation to fulfil their duty of care to employees by providing safe and healthy workplaces and working practices form these imperatives (Sethi & Schuler, 1984). Certainly in recent years, employees are starting to succeed in suing employers for psychological harm resulting from the stress of performing their role (Lancaster v Birmingham City Council, Birmingham County Court, 6.7.99 (Case no. BM6 24958); Walker v Northumberland County Council, High Court (Queen's Bench Division), 1995 IRLR 35). Further impetus to this focus on job characteristics is provided by the government's recent white paper on improving the health of the nation. Mental health has been identified as one of the priority areas for action, alongside cancer, coronary heart disease and stroke, and accidents (Secretary of State for Health, 1999). One of the initiatives set out by the government for reducing mental ill health is to ensure people are protected from the harm to their health that certain jobs, such as those that make heavy demands, can cause (Department of Health, 1998b; Secretary of State for Health, 1999). With health-care staff experiencing greater stress than non health-care workers from their work (Rees & Cooper, 1992), this is one occupational group in which further exploration is called for.

2.1.3 Models of job stress in doctors

A number of studies have been carried out which have investigated models of stress in doctors. Deary and colleagues are the only group to date to examine a model of job stress among hospital consultants in this country. In a sample of 375 Scottish consultants (response rate 75%) they modelled stress comprehensively, assessing consultants' personality, job-related sources of stress, coping strategies and stress outcomes using standardised questionnaires or their own rigorously developed instruments. Using structural equation modelling Deary (Deary *et al.*, 1996b) found support for a transactional model of stress. In this model, the stress process was best represented as a pathway from personal variables, mainly neuroticism, through emotion-focussed coping strategies and reported job stress to burnout, in the form of emotional exhaustion and

depersonalisation, measured by the Maslach Burnout Inventory (Maslach & Jackson, 1981). This indicated that among consultants personality influenced stress outcomes in part indirectly, through coping and appraisal, and that aspects of both the work environment and personality influenced the amount of stress reported. The fit indices provided by the modelling software indicated that this model has a very good fit to the data, as did a chi-square test. Further statistical analysis provided no indication that a better fit would be provided by having fewer or additional connections among the variables.

Other studies have also found support for an interactional model of stress among doctors. Cooper (Cooper *et al.*, 1989) found in an analysis of data from almost 2000 GPs (response rate less than 50%), aspects of work identified by these doctors as sources of stress and Type A personality predicted psychological distress, measured by the Crown-Crisp experiential index (Crown & Crisp, 1979). The contribution of sources of stress at work was much greater than that of Type A personality according to multiple regression analysis, but these variables together, along with age and gender, accounted for only 20% of the variance in GPs' psychological distress. In another study, this time among 564 anaesthetists (response rate 56%), the same author found poor mental health, measured by the mental health scale of the Occupational Stress Indicator scale (Cooper, Clarke, & Rowbottom, 1999), was predicted by both personal variables, in the form of gender, Type A personality and Locus of control, and by perceived sources of stress in the work environment. Both general sources of stress, and those specifically relevant to the work of anaesthetists were assessed. Personal variables explained 14% of the variance in mental health scores, while general and specialty-specific sources of stress at work together explained 23% (Cooper *et al.*, 1999).

Revicki and May (1985) examined a model of stress among 210 US family physicians (66% response rate) using structural equation modelling. They report a model which identified small direct and indirect associations between occupational stress, measured by the Health Professional Stress Inventory and depression, measured by the Self-Rating Depression Scale (Zung, 1965). This model provided an adequate fit to the data as indicated by the chi-square statistic. The indirect association was moderated directly by social support from one's family and indirectly by the effect of locus of control on family social support. The model therefore suggests that doctors who have a strong sense of personal control make greater use of social support from their family when experiencing occupational stress. Social support from one's peers did not moderate the relationship between occupational stress and depression, which the authors believe may reflect the lack of availability of such support, since most family practitioners in private practice work alone and even those in group practice usually work independently.

Revicki and colleagues (Revicki, Whitley, & Gallery, 1993) went on to test a similar model among 484 junior doctors working in emergency medicine, in a study with a fairly poor response rate of 50%. In this study they also examined associations between poor mental health and doctors' perceptions of ambiguity in their role. Role ambiguity exists where an individual is unclear about the role he or she is performing. Revicki found that doctors with an internal locus of control reported greater social support, this time from their peers, and a more cohesive work group alongside lower levels of occupational stress, measured using the author's own Work Related Strain Inventory. Both role ambiguity and stress were associated with depression. Once again, the model provided a good fit to the data according to chi-square and goodness of fit indices. The authors speculate that the role ambiguity experienced by junior doctors may arise through their position as both students and qualified doctors (Revicki *et al.*, 1993), and may be less of a problem for more senior doctors.

Sutherland and Cooper (1993) found among 917 GPs (response rate 61%) free-floating anxiety (measured by the Crown Crisp Index) was predicted by sources of stress relating to the GP's role, including demands of the job and patients' expectations, practice administration and routine medical work. Alongside gender, Type A personality style, number of surgeries practising from and low use of involvement as a way of coping with stress (becoming involved in and committed to the issues causing stress), these variables explained 24% of the variance in these anxiety scores. Somatic anxiety was associated with sources of stress relating to the demands of the job and patients' expectations, the home-work interface, practise administration/routine medical work, which together explained 16% of the variance. Two sources of stress were significantly associated with depression: demands of the job and patients' expectations and stress arising from the home work interface. Along with low use of social support as a way of coping with stress, these variables explained 21% of the variance in somatic anxiety among the GP sample.

Among 1785 junior doctors in the USA (response rate 60%), experiencing stress from abusive patients and changes to the work schedule were found to be related to both general and work-related behaviours postulated by the authors as indicative of stress (Jex *et al.*, 1991). Examples of general behaviours were withdrawal from family and friends and behaving less reliably and responsibly, while work-related behaviours were making mistakes, missing deadlines and conflicts with co-workers. Regression indicated a small but significant relationship between experiencing stress from these aspects of work and the stress behaviours, which was mediated by experiencing high levels of psychological strain (assessed using their own instrument).

Sources of stress do not only occur in the work environment, they occur in other domains of life, yet very few studies have examined sources outside work among doctors. Among

204 US doctors, Simpson and Grant (1991) found no significant associations between sources of job stress (12 items, own questionnaire, rated according to how problematic each was for each doctor) and mental impairment as measured by the Symptom Check List-90 (Derogatis, 1977). Impairment was associated only with the occurrence of non-medical life events, such as births, deaths, beginning and ending relationships, and geographical moves, though the magnitude of the association is not given. In another study investigating sources of stress at home and work among a sample of NHS staff, including doctors, Weinberg (Weinberg, 1999) found staff identified as having psychiatric morbidity using a clinical psychiatric interview were more likely than those without psychiatric morbidity to report stress at work, for example from their workload and from an interpersonal problem with their supervisor, but also were more likely to have experienced an event or difficulty outside work in the last year which was evaluated as severely threatening.

Before summarising what these studies tell us about the experience of stress in doctors, it is necessary to note that these studies are illustrative of a number of the methodological problems which characterise research on stress generally. First of all, using self-report measures to assess both job stress and psychological dysfunctioning, as is the case for all of the studies described above except that by Weinberg, has been perceived as problematic for a number of reasons, summarised by Frese and Zapf (1988). Associations between two self-report measures are thought to be influenced by: 1) common method variance, such as central tendency, halo effect; 2) overlap in the content of the questionnaires; 3) the chance that both variables could be influenced by a third variable which accounts for the relationship between them (though this can be the case for any two variables, not just those measured by sef-report); 4) short-term fluctuations in well-being; 5) demand characteristics, whereby respondents try to give the researchers what they perceive them to want. All of these factors may cause error in the measurement of the variables and are likely to cause the relationship between independent and dependent variables to be inflated, or otherwise inaccurate.

Using alternative ways of measuring variables such as job stress, rather than self-report measures, has been suggested as the way to avoid these spurious associations. Observer ratings of variables are the main alternative to self-report, but these have their own set of difficulties, itemised again by Frese and Zapf (1988) as: 1) limited time of observation of job, which may cause certain sources of stress to be missed; 2) unavailability of some sources of stress for observation, such as those requiring intense mental work; 3) effects of observer on work behaviour; 4) unrepresentativeness of certain jobs or organisations. The direction in which these factors would affect the relationship between sources of stress and psychiatric morbidity is unclear. Using observer ratings of sources of stress therefore brings its own set of problems and does not provide a

straightforward alternative to self-report assessment. With alternatives to self-report questionnaires bringing their own difficulties, there is a strong case for using self-report measures, while being aware of potential problem areas and taking appropriate steps to minimise their effects. For example, when developing instruments to measure sources of stress, procedures can be used to ensure questionnaire items relate to specific aspects of the work environment, rather than respondents' more general perceptions of work. Basing measures of sources of stress on specific aspects of the environment will reduce the likely influence of short term mood fluctuations and demand characteristics and prevent overlap in the content with instruments to measure mental health. This approach is likely therefore to minimise the inflation due to these factors of any associations found between sources of stress and measures of psychiatric morbidity (Frese & Zapf, 1988).

In addition to error in the measurement of the different variables, there is a more fundamental difficulty, in that the variables involved in the stress process are themselves likely to be confounded (Brown & Harris, 1989). For example, an individual's perception of the environment is likely to be influenced by his or her psychological state, in that an individual who is depressed, for example, is likely to perceive their working environment as more difficult and stressful. This is a more fundamental problem because it represents bias. While error in measurement is likely to influence the size of any relationship found between two variables, this does not prevent valid conclusions from being drawn about the relationship. Bias on the other hand can result in relationships being identified where in fact they do not exist (Brown & Harris, 1989). Again the use of well-designed instruments is important here, in that using a clinically validated standardised instrument to measure psychiatric morbidity and a stress questionnaire grounded very firmly in the occupational environment is likely to reduce the bias that could occur when using instruments which allow a far greater role for individuals' subjective evaluations. Using large samples and looking for statistical associations in which only information about the environment is used is advocated as an appropriate approach through which powerful effects can emerge (Brown & Harris, 1989).

Another problem is that the response rates in these studies are generally quite low, usually between 50 and 60%, with the exception of Deary's 1996 study in which 75% of consultants returned questionnaires and that by Weinberg with a response rate of 67%. When as many as half of participants are not providing data, the sample can not be said to be representative of the population in question with any degree of confidence. Further, the lack of agreement over which are the key aspects of each of the variables in the stress process to measure is also demonstrated here. Personal variables assessed in these studies include type A personality, locus of control, those assessed by the NEO five factor measure (Costa & McCrae, 1992), including neuroticism, use of emotional expression and involvement as coping strategies, social support from both ones peers and family, and

perceptions of work factors such as the cohesiveness of one's work group. Most studies include only a small number or just one of these variables, which makes it difficult to identify patterns in relationships across a range of studies.

Turning to the measurement of sources of stress at work, these are most often identified using standardised questionnaires developed for professional groups or health professionals and less often by means of questionnaires developed for the specific groups of doctors who are the subject of the study. It appears that a greater proportion of the variance in doctors' mental health is explained by sources of job stress when these are assessed by specialty specific questionnaires, as was carried out in a recent study of anaesthetists by (Cooper *et al.*, 1999). Details of sources of stress identified for doctors are discussed in the next section.

Evaluating how well these models fit the data, the studies which use structural equation modelling demonstrate by at least one of the relevant statistics that their models provide an at least adequate fit to the data, those which use regression generally only explain 15-25% of the variance in psychological distress. The study by (Cooper *et al.*, 1999) is an exception at 37%, though a large amount of variance nevertheless remains unexplained. This appears to indicate that variables other than those measured in these studies have a role in the development of poor mental health among doctors.

What can be taken from these studies is that they broadly support an interactional model of poor mental health among doctors, with both environmental sources of job stress and characteristics of the individual having a role, but with sources of stress generally being found to have the relatively greater role. There is very little agreement about which are the individual characteristics of doctors confer vulnerability to stress. Assessing sources of stress at work using an instrument designed specifically for the group of doctors being studied provides better prediction than using instruments designed for broader applicability. The small amount of variance in psychiatric morbidity explained by these studies indicates the necessity of examining the role of additional variables, such as the satisfaction doctors derive from their work, in attempts to better predict doctors' psychiatric morbidity.

2.1.4 Sources of job stress for doctors

Differences in psychiatric morbidity across occupational groups may occur as a result of differences in the demands these roles make of job holders. For example, a large national survey of a range of occupational groups working in NHS trusts found large differences in the prevalence of psychiatric morbidity, ranging from 33% among managers, with nurses (29%) and doctors (28%) having the next highest prevalences, down to 23%

among administrative staff and 20% among ancillary staff (eg catering, laundry, portering; Wall *et al.*, 1997). These differences according to occupational group were highly significant and were independent of socio-demographic or Trust factors. Such differences may be the result of factors concerned with the individuals choosing to go into these different roles or concerned with aspects of performing particular occupational roles.

It has been suggested that the role of doctor is more stressful than many other forms of work (Revicki & May, 1985). Certainly interactions with patients can be emotionally demanding in a variety of ways:

> *"Patients may be worried, anxious or even frightened about what is happening to them. They may be embarrassed by questions they have to answer or the procedures they have to undergo. They may become upset at the news that the health practitioner gives them, or they may deny that it is true. They may misinterpret what is told to them or fail to follow instructions. They may get angry or even abusive. They may have trouble articulating their thoughts and fears. They may make excessive complaints or become impatient and unreasonable regarding care. Some patients may be rude or obnoxious in their personal style"* (Maslach & Jackson, 1982, pp 232-233).

A review of the literature on sources of stress at work has identified six categories into which these fall (Cooper, 1983):

(1) factors specific to the job, for example, overload
(2) relationships at work, for example, lack of support from colleagues
(3) role in the organisation, for example, conflicting job demands
(4) organisational structure, for example, lack of participation in decision making
(5) career development
(6) home-work conflicts

Sources of stress from the six categories are thought to be represented to a greater or lesser extent across different occupational roles. Other authors have presented categorisation systems for sources of stress at work, for example Quick and Quick (1984), but in recent years Cooper's categorisation has been the most popular and widely used and will be used here. Research investigating sources of stress at work for doctors will be presented according to these six categories.

Factors specific to the job

A large number of job-specific factors are reported as sources of stress by doctors. Of these, the aspect of work which generally is described by doctors as contributing the most to the stress they experience at work is work overload (Agius, Blenkin, Deary, Zealley, & Wood, 1996; Richardsen & Burke, 1991; Firth-Cozens, 1987; Burke & Richardsen, 1990). Among a sample of Scottish consultants, a stress factor derived through principal

components analysis and termed "demands on time" was rated as contributing the most to consultants' overall job stress. This factor comprised items concerning having so much work to do that everything cannot be done well, interruptions, conflicting demands on time, pressure to meet deadlines and having job duties which conflict with home life (Agius *et al.*, 1996). Junior doctors also report overwork as their most stressful aspect of work (Firth-Cozens, 1987; Firth-Cozens, 1989; Firth-Cozens, 1990). Likewise among GPs, activities associated with a lowering in mood, derived from diaries kept over two typical working days, were most frequently ascribed to hassle (unexpected demands, intrusions, delays) and pressure of time (Rankin, Serieys, & Elliott-Binns, 1987). GPs also report their administrative workload and being under time pressure generally as major sources of stress (Cooper *et al.*, 1989; Sutherland & Cooper, 1992; Makin, Rout, & Cooper, 1988). The highest rated sources of stress in a large survey of GPs were making night visits, receiving phone calls at night or in the early morning, emergency calls during surgery hours and time pressure (Sutherland & Cooper, 1992). A review by Heim has confirmed that workload is reported as the foremost source of stress by doctors in many studies (Heim, 1991), though somewhat puzzlingly it is not mentioned in a review of stress and the medical profession carried out by the British Medical Association (1992).

In terms of the types of workload, for consultants, clinical workload was perceived as the most demanding, followed by administration, with workload relating to research and teaching rated as contributing the least to their stress (Agius *et al.*, 1996). Correlational data indicated some weak relationships between types of workload and both other sources of stress and burnout (Agius *et al.*, 1996). For example, consultants who reported higher clinical work demands reported greater stress from the patient care aspects of their work and from organisational constraints, while those with a higher reported administrative workload reported greater stress from demands on their time and their personal competence in their role. Consultants reporting higher clinical work demands had higher personal accomplishment and those with higher academic work demands had lower emotional exhaustion and depersonalisation, though the magnitude of all of these correlations was small.

Other job-specific sources of stress which may relate to work overload are interrupted work and administrative demands, reported particularly among GPs (Cooper *et al.*, 1989; Makin *et al.*, 1988), though interruptions are also reported as a source of stress by doctors more generally (Wolfgang, 1988). Examining actual rather than perceived work characteristics, Firth-Cozens (Firth-Cozens, 1987) found neither number of hours worked nor number of beds under doctors responsibility related to stress levels among junior doctors. It has been suggested (Scheiber, 1987) that the constant emphasis by doctors on overwork may mask more anxiety-inducing fears. While this is an interesting possibility, data exist to demonstrate that consultants' workload has increased in recent years. For

example, a report published in 1993 showed that in the previous twenty years radiologists' workload has trebled, while numbers of radiologists have only doubled (Royal College of Radiologists, 1993). A study of the workload of consultants in Scotland showed there had been a 59% increase in admissions between 1991 and 1995 and 49 out of the sample of 53 consultants reported a perceived increase in clinical activity, with the average hours worked per week being 60 (Mulholland & Muir, 1998).

As well as work overload, a number of aspects of patient care have been reported by doctors as sources of stress. To a degree these relate to doctors' day to day interactions with patients, such as being involved with patients' physical suffering (Peteet *et al.*, 1989; Ullrich & Fitzgerald, 1990), making decisions where mistakes can have severe consequences (Simpson & Grant, 1991; Flaherty & Richman, 1986; Bates, 1982) and the daily demands of having to act quickly and deal with unexpected situations (Cooper *et al.*, 1999). Other aspects of patient care described as sources of stress involved more extreme or unusual patient encounters, such as serious treatment failures (Firth-Cozens, 1987)[Firth-Cozens, 1990](Mawardi, 1979) and a sense of failure from being unable to cure a patient (Peteet *et al.*, 1989; Whippen & Canellos, 1991). Other such aspects include seeing patients suffer side effects or toxicity from treatment prescribed (Ullrich & Fitzgerald, 1990) and involvement with death and suffering (Bates, 1982; Richardsen & Burke, 1991; Ullrich & Fitzgerald, 1990), alongside concerns about being sued for malpractice (Richardsen & Burke, 1991; Simpson & Grant, 1991; Cooper *et al.*, 1999). Relating to this, confronting difficult ethical decisions (Simpson & Grant, 1991; Clarke *et al.*, 1984) was reported in several studies of doctors as a source of stress. Dealing with certain types of patients is also reported as stressful. GPs reported dealing with what they described as "problem patients" as the next most highly rated source of stress after overload (Sutherland & Cooper, 1992). Psychiatrists describe violent, threatening and suicidal patients as particular sources of stress (Guthrie, Tattan, Williams, Black, & Bacliocotti, 1999). Meeting patients' emotional needs and dealing with their emotional problems (Simpson & Grant, 1991; Wolfgang, 1988) along with breaking bad news (Ullrich & Fitzgerald, 1990) have also been described as sources of stress, along with dealing with the emotional reactions of relatives (Firth-Cozens, 1987; Clarke *et al.*, 1984). Consultants specifically describe experiencing stress from aspects of patient care such as these, though these aspects of work contributed less to job stress than demands on their time and organisational constraints (Agius *et al.*, 1996).

Others sources of stress which have arisen in the job-specific category for doctors were keeping up to date in their field (Agius *et al.*, 1996; Wolfgang, 1988) and the perception of having to function at the maximum level of competence at all times (Simpson & Grant, 1991) alongside constant face-to-face evaluation from ward staff (Firth-Cozens, 1989).

Relationships at work

Some relationships at work have been described by doctors as contributing to their stress, though less so than for other health professionals such as nurses, professions allied to medicine, scientists and technicians, (Rees & Cooper, 1992), presumably because doctors are at the most senior level of the hospital hierarchy. Nevertheless, a proportion of doctors' reports relationships with (depending on the sample) junior doctors, consultants and with nurses, as sources of stress (Guthrie *et al.*, 1999; Clarke *et al.*, 1984; Purdy, Lemkau, Rafferty, & Rudisill, 1987), though the proportion is far smaller than reports stress from other aspects of work such as overload. Consultants report conflicts with co-workers and with managers and administrators as sources of stress (Agius *et al.*, 1996) and as a group consultants report greater stress than GPs from their professional relationships (Swanson *et al.*, 1996).

Role in the organisation

Regarding role in the organisation, the aspects of work in general which have been demonstrated as contributing to job stress are role ambiguity, where the job-holder is uncertain about how the role should be performed, and role conflict, where there are conflicting demands made of the job-holder (Warr & Wall, 1975). The literature indicates that doctors do not describe ambiguity in their role as a source of stress and in fact in a study of consultants and senior registrars in accident and emergency medicine, task and role clarity were reported to be high, particularly among consultants (Heyworth, Whitley, Allison, & Revicki, 1993b). Nevertheless there was a degree of variability in doctors' ratings of their task and role clarity and a moderate negative correlation ($r = -.64$) between these and job stress indicated that those who were clearer about the nature of the role they were expected to perform and the tasks within it reported less stress. Role ambiguity has been found to be associated with depression in a sample of US doctors (Revicki *et al.*, 1993). Turning to role conflict, the predominant conflict doctors describe in their role is between the job as a whole and their home life, which falls under its own separate category according to Cooper's review. However, one study of consultants has found that they report having to deal with conflicting demands on their time as a source of stress (Agius *et al.*, 1996). Looking at other aspects or role, in one study of young female doctors, gender prejudice from patients was reported as a source of stress (Firth-Cozens, 1990), but the degree to which prejudice by gender or race contributes to stress has not been investigated among doctors more widely.

Organisational structure

In the category of organisational structure, increasing involvement of third-parties in doctors' work and increased management of doctors' activities by non-doctors have been reported by doctors as sources of stress (Agius *et al.*, 1996; Stoline & Weiner, 1988). Anaesthetists found the lack of control they had over their work and lack of communication

an important source of stress (Cooper *et al.*, 1999). In addition, with the NHS being notoriously under-funded it is no surprise that having insufficient facilities or resources to carry out one's job well was also reported by some studies of doctors as a source of stress (Agius *et al.*, 1996; Clarke *et al.*, 1984; Cooper *et al.*, 1999). A comparison of GPs and consultants found consultants reported greater stress than GPs from the structure and climate of the organisations in which they worked, with female consultants reporting the highest stress from this (Swanson *et al.*, 1996).

Career development

Aspects of career development have rarely been reported by doctors as sources of stress, and when they are reported, the stress experienced from this aspect of work tends to be less than that reported by other health professionals (Rees & Cooper, 1992). An exception is a study by Isobel Allen of over 600 doctors, who described experiencing stress relating to their career development as a result of the lack of opportunity to deviate from the 'straight and narrow' career path, a perceived lack of suitable career posts and an absence of job security (Allen, 1988). In addition, consultants have recently reported a lack of opportunities for advancement on the job front as a source of stress (Agius *et al.*, 1996) and consultants report more stress from this than GPs (Swanson *et al.*, 1996).

Home-work conflicts

In the sixth category, that of home/work conflicts, the effects of the doctors' work on their home life and general lack of personal/free time was widely quoted as a source of stress (Agius *et al.*, 1996; Firth-Cozens, 1990; Clarke *et al.*, 1984; Wolfgang, 1988; Cooper *et al.*, 1989; Makin *et al.*, 1988; Bates, 1982). This is not surprising since they also reported overwork as a fundamental feature of the job.

The research carried out to identify sources of stress in doctors' work is of highly variable quality. Some of the studies are based on very small samples of doctors (for example, (Rankin *et al.*, 1987) N = 44; (Purdy *et al.*, 1987) N = 67) and the response rates of others are only around 50% (Cooper *et al.*, 1989; Heyworth *et al.*, 1993b; Makin *et al.*, 1988; Wolfgang, 1988), both of which raise questions about the representativeness of the data. In addition, the methods and instruments used to collect data on sources of stress are highly variable, making it difficult to compare findings. Some studies have used standardised questionnaires designed for broad groups of occupations (Rees & Cooper, 1992: Occupational Stress Inventory; Heyworth *et al.*, 1993b: Work Related Strain Inventory) which provide information on the extent to which doctors experience stress from general aspects of work, but which may miss a large number of specific sources of stress for doctors through being designed for broad applicability. Others ask doctors to rate sources of stress which appear to be largely based on what the authors perceive to

be sources of stress for doctors, with no description in some publications of where the sources of stress enquired about were derived from, l*et al*one whether these were derived in a systematic way (for example, (Jex *et al.*, 1991; Mawardi, 1979; Rankin *et al.*, 1987; Richardsen & Burke, 1991)). Others use open questions (Bates, 1982; Clarke *et al.*, 1984; Burke & Richardsen, 1990; Purdy *et al.*, 1987; Simpson & Grant, 1991), where sources of stress are not stipulated in advance and where participants can put forward sources of stress specific to their own working life, though usually this methodology only covers a few or even just one source of stress for each doctor. The most psychometrically robust studies used instruments containing items derived from focus groups or interviews with doctors, which were then rated by a larger sample of doctors (Agius *et al.*, 1996; Cooper *et al.*, 1989; Cooper *et al.*, 1999; Firth-Cozens, 1987; Firth-Cozens, 1990; Makin *et al.*, 1988; Sutherland & Cooper, 1992). Using this methodology combines accurate identification of sources of stress with an assessment of the relevance of a relatively large number of sources of stress across a large sample of doctors.

Individual differences are likely to exist in perceptions and experiences of stress, in that, for example, a particular level of workload may be for one doctor stimulating and challenging, while for another may cause intolerably high stress. This highlights the need to assess the perceptions of doctors of their sources of stress, rather than assessing sources of stress as being couched entirely in the environment as, for example, the number of patients seen per week. If a high proportion of doctors report work overload as a source of stress, this is sufficient to indicate that this aspect of an occupational role is a source of stress, beyond any necessity to count numbers of patients. The difficulty of the confounding of variables in this area of research is relevant here, in that a doctors who is suffering from psychiatric morbidity is likely to perceive a greater degree of work overload than one who is not. As advised by Brown & Harris (1989), looking for patterns across large samples and using robustly developed instruments is important.

Looking overall at what these studies suggest, it is clear that in spite of the methodological diversity, common themes do emerge as to the aspects of work which doctors perceive as causing them to experience stress. When questioned about the sources of stress in their work it appears doctors perceive these in the main as work overload and its harmful effect on home life, together with certain aspects of patient care. Issues concerning doctors' relationships with other professionals at work, their role in the organisation, the organisational structure in which they work and their career development are described as sources of stress relatively less frequently. In a survey of over 2000 Canadian physicians who were asked to describe the three most important sources of stress connected with their professional practice, content analysis of the data revealed that almost 45% of the aspects of work listed concerned workload issues and difficulties with patients (Burke & Richardsen, 1990). Similarly, Purdy found 46% of residents' responses

to a similar question related to their experiencing stress from demands on their time and 9% concerned responsibility for patients (Purdy *et al.*, 1987).

Whether these studies have captured sources of stress for *senior* hospital doctors in this country remains questionable, however, in that the majority of these studies have been based on either junior doctors (Firth-Cozens, 1987; Firth-Cozens, 1990; Simpson & Grant, 1991; Mawardi, 1979; Purdy *et al.*, 1987; Heyworth *et al.*, 1993b) or general practitioners (Cooper *et al.*, 1989; Makin *et al.*, 1988; Rankin *et al.*, 1987; Sutherland & Cooper, 1992) or were carried out on a non-UK sample (Bates, 1982; Burke & Richardsen, 1990; Clarke *et al.*, 1984; Mawardi, 1979; Purdy *et al.*, 1987; Richardsen & Burke, 1991; Simpson & Grant, 1991; Wolfgang, 1988) or a single specialty sample, namely neonatologists (Clarke *et al.*, 1984), anaesthetists (Cooper *et al.*, 1999), oncologists (Peteet *et al.*, 1989; Ullrich & Fitzgerald, 1990; Whippen & Canellos, 1991) or psychiatrists (Guthrie *et al.*, 1999). Three studies have examined sources of job stress for consultants in this country, two of which were based on Scottish consultants (Agius *et al.*, 1996; Swanson *et al.*, 1996), and one examined consultants only from a single specialty: psychiatrists (Guthrie *et al.*, 1999). An examination of sources of stress in the occupational environment based on a national sample of consultants covering a range of different specialties remains to be undertaken.

The examination of the literature described above formed part of the process of development of an instrument utilised in the current research to assess sources of stress at work for UK hospital consultants. Aspects of work identified as sources of stress for doctors in this review formed the basis of a semi-structured interview with a sample of consultants the purpose of which was to assess the relevance of these sources of stress to the stress experienced by UK hospital consultants and to identify additional sources of stress for these consultants which had not been identified in the literature. The sources of stress derived from the literature for this purpose are shown in table 6.1 in chapter 6. Note that a number of the studies described above have been carried out since the original literature review was carried out and not all sources identified in this review are included in the table 6.1.

2.2 Job satisfaction

Job description has been defined as a "*pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences*" (Locke, 1976). Far less attention has been focussed, however, on the positive aspects of well-being which can arise through work than the negative. The development of theory on what job satisfaction is and which variables are important in maintaining it rather lags behind that relating to job stress.

2.2.1 Theories of job satisfaction

Historically, two major theories have dominated the area of job satisfaction and

dissatisfaction (Warr & Wall, 1975). The first is the conception of (Maslow, 1970) that individuals have a hierarchy of five different classes of needs. Physiological needs are at the lowest level of the hierarchy, then safety, belonging/friendship/love, self-esteem (derived from achievement and recognition), and finally self-actualisation. According to the theory, the needs at the top end of the hierarchy will not motivate behaviour while those lower down remain unsatisfied, ie an individual will not starve to fulfil a higher need, or sacrifice safety for the sake of self-esteem. However, there is little evidence to support this theory and everyday experience also suggests it is incorrect. For example, there are individuals who find their work so rewarding in terms of reward and recognition that they are not concerned about eating properly, risk their own safety and lose their friends. The idea of there being different classes of needs (though not in a hierarchy) is more widely accepted, however, and job satisfaction can be viewed in the context of a wider framework of needs.

The second major theory is Hertzberg's two factor theory (Herzberg, Mausner, & Snyderman, 1959; Herzberg, 1966). Hertzberg suggests that job satisfaction and dissatisfaction are related to different factors. Satisfaction is influenced by 'motivator' factors, which are factors intrinsic to the job, such as achievement, recognition, the work itself, responsibility and advancement. Dissatisfaction, on the other hand, is thought to be related to 'hygiene' factors, which are factors relating to the job context, such as pay, working conditions, security and interpersonal relations. Whilst there is an amount of research to support Hertzberg's theory, other work does not support it (Warr & Wall, 1975), generally because of finding that motivator factors also influence job dissatisfaction.

(Locke, 1976) has incorporated aspects of both these and other theories in his idea that satisfaction arises from fulfilment of a person's needs in a way which does not contradict with his/her values. So an individual who has a job which enables his/her needs to be met in such a way will derive satisfaction from that job. He suggests the most important job factors relating to satisfaction are:

- mentally challenging work, which the individual can cope with successfully,
- personal interest in the work itself,
- rewards for performance which are consistent with the individual's aspirations,
- working conditions which allow the job to be completed satisfactorily and which are not physically demanding, and
- basic values which are not violated by the above.

If some or all of these criteria are not met then it is hypothesised dissatisfaction with the job may result.

2.2.2 Models of job satisfaction in doctors

Examination of the literature reveals few attempts to develop models of job satisfaction in doctors. One study to have addressed this among UK doctors is that by (Deary *et al.*, 1996b) who used the third dimension of burnout, personal accomplishment, as an indication of job satisfaction among 375 consultants working in Scotland. Using structural equation modelling Deary found a direct relationship between extroversion and personal accomplishment, ie consultants who scored more highly on extroversion had higher feelings of personal achievement at work. Personal accomplishment was also related to conscientiousness, though indirectly. Consultants scoring highly on conscientiousness appeared to feel higher personal accomplishment as a result of their tendency to use task-oriented coping strategies in times of stress (ie to try to solve the cause of stress in a practical manner). Although indicating interesting relationships, no rationale was provided by Deary for using personal accomplishment to represent job satisfaction and its use in this way is questionable.

2.2.3 Sources of job satisfaction for doctors

As has been pointed out recently "positive aspects of practising medicine are rarely the object of empirical study" (Deary *et al.*, 1996b) p22. Such research as there is on job satisfaction among doctors has approached the subject in a rather atheoretical way (Mawardi, 1979; Swanson *et al.*, 1996). No categorisation for occupational sources of satisfaction has been presented, such as is the case for sources of stress, therefore for sources of satisfaction aspects of work will be organised here simply according to common themes.

The great majority of responses by doctors to questions regarding which aspects of work contribute to their job satisfaction related to their interactions with patients. In an interview study of Australian consultants, registrars and GPs, "helping people, getting them better and seeing results" accounted for the highest number of answers to open-ended interview questions regarding the satisfactions of medical practice (Bates, 1982). Among 2500 Canadian doctors the most important source of satisfaction was relations with patients, with treating illness also highly rated (Richardsen & Burke, 1991). Among 96 US neonatologists, aspects of work to do with patient care were by far the most frequently reported sources of satisfaction derived from open-ended questions (Clarke *et al.*, 1984). A small sample of oncologists have reported through semi-structured interviews that curing cancer was an important satisfaction in their work (Peteet *et al.*, 1989).

A study of job satisfaction in a large sample of GPs, which used the Warr-Cook-Wall job satisfaction questionnaire, designed for general applicability across jobs, found that the degree of responsibility GPs had in their work, the freedom they had to choose their own method of working, and the amount of variety in their work were the three most highly

rated sources of satisfaction (Cooper *et al.*, 1989). Another study using the same instrument, this time on a sample of only 20 GPs, similarly found autonomy and variety to be important sources of satisfaction (Makin *et al.*, 1988). Surveying a large sample of GPs using the same instrument two years later, after the introduction of new GP contracts; it was found that satisfaction with these aspects of work had decreased, and that GPs were less satisfied with their work overall (Sutherland & Cooper, 1992). At this later time point other aspects of work were now rated more highly, however, such as opportunity to use your abilities, relationships with colleagues and fellow workers, and pay, indicating that not all change had been in a negative direction. As well as GPs, junior doctors and consultants report the autonomy they have over their work, its variety, and the amount of responsibility they hold as important sources of satisfaction, though consultants derived higher satisfaction from these aspects than juniors (Kapur, Borrill, & Stride, 1998). Autonomy has also been reported as a source of satisfaction using open interview questions among Australian doctors (Bates, 1982).

Among consultants and junior house officers job security was quite a highly rated source of satisfaction, though there was less satisfaction with pay, particularly among the junior doctors (Kapur *et al.*, 1998). High status in the community was described as an important source of satisfaction among Australian GPs and consultants (Bates, 1982), while a sample of consultants in Scotland reported higher satisfaction from their "achievements, value and growth" than a norm group (Swanson *et al.*, 1996). The intellectual stimulation of their work, alongside teaching and research were reported by US neonatologists and oncologists as sources of satisfaction (Clarke *et al.*, 1984; Peteet *et al.*, 1989).

Among GPs, relationships with fellow-workers have been described as satisfying (Cooper *et al.*, 1989; Makin *et al.*, 1988). A comparison of job satisfaction between GPs, consultants and a norm group indicated that GPs derived significantly greater satisfaction compared to the norm group from personal relationships, while consultants found personal relationships less satisfying than the norm group (Swanson *et al.*, 1996). In another study, however, among consultants and junior house officers (Kapur *et al.*, 1998) relationships with fellow workers were quite a highly rated source of satisfaction, though management-worker relationships were rated by both groups as a lot less satisfying. Relations with other doctors and relations with other health personnel were important sources of satisfaction among Canadian doctors (Richardsen & Burke, 1991).

Among senior house officers, higher overall job satisfaction was found among those who reported that they knew what was expected of them (ie they reported high task and role clarity), perceived a high degree of cohesiveness in their work group and whose overall rating of the stress they experienced at work (WRSI) was low (using multiple regression) (Heyworth, Whitley, Allison, & Revicki, 1993a).

The research carried out to identify sources of satisfaction in doctors' work largely suffers from the same methodological limitations as that focusing on sources of stress, with concerns about representativeness through small sample size (Clarke *et al.*, 1984) N=96, (Makin *et al.*, 1988) N=108 and low response rate (Cooper *et al.*, 1989; Heyworth *et al.*, 1993b). Diverse methods of collecting data again preclude comparison across studies, with studies making use of standardised questionnaires designed for broad groups of occupations (Swanson *et al.*, 1996; Cooper *et al.*, 1989; Makin *et al.*, 1988; Sutherland & Cooper, 1992), questionnaires containing items of questionable origin (Richardsen & Burke, 1991), and open questions (Bates, 1982; Clarke *et al.*, 1984) covering only very few or one source of stress for each doctor. No studies have as yet been carried out to assess sources of satisfaction for doctors containing items derived from focus groups or interviews with doctors which were then completed by a larger sample of doctors, which combines accurate identification with an assessment of broader relevance.

Again, in spite of this methodological diversity, common themes do emerge as to the aspects of work which doctors perceive as contributing to the satisfaction they derive through the performance of their role. These predominantly focus on treating patients and having good relationships with patients, having high levels of autonomy over their work, varied tasks and high levels of responsibility, and having good relationships with other staff members. Less frequently mentioned, but mentioned nevertheless were job security, high status, and deriving intellectual stimulation from their work through teaching and research.

As with job stress, the studies carried out to date have focused on junior doctors (Heyworth *et al.*, 1993b) or general practitioners (Cooper *et al.*, 1989; Makin *et al.*, 1988; Sutherland & Cooper, 1992) or were carried out on a non-UK sample (Bates, 1982; Clarke *et al.*, 1984; Richardsen & Burke, 1991) or a single specialty sample, namely neonatologists (Clarke *et al.*, 1984), oncologists (Peteet *et al.*, 1989). Only one study has been carried out to examine sources of job satisfaction for consultants in this country, and this was based on a Scottish sample and used a questionnaire designed for general applicability (Swanson *et al.*, 1996). An examination of sources of satisfaction in the occupational environment based on a national sample of consultants covering a range of different specialties remains to be undertaken.

These aspects of work identified as sources of satisfaction for doctors formed the basis of a semi-structured interview with a sample of consultants the purpose of which was to assess the relevance of these sources of satisfaction to the experience of UK hospital consultants and to identify additional sources of stress for these consultants which had not been identified in the literature. The sources of stress derived from the literature and for this purpose are shown in table 6.2 in chapter 6.

2.3 Relationship between job stress and satisfaction

Job satisfaction is usually conceptualised as an outcome variable of the stress process and in studies is measured as a dependent variable (Cooper *et al.*, 1989; Rees & Cooper, 1992; Revicki *et al.*, 1993). In the usual format of studies of stress among doctors, various combinations of personal and job characteristics are assessed to find out which are predictive of poor mental health and job satisfaction. Cooper found four sources of job stress: demands of the job and patients' expectations; work home interface and social life; interruptions; and practice administration were negatively predictive of job satisfaction among GPs (Cooper *et al.*, 1989). Makin (Makin *et al.*, 1988) found three of four stress factors, derived from factor analysis of 32 sources of stress, explained 46% of the variance in job satisfaction among GPs. These data indicated that job satisfaction among GPs was more likely when there were few interruptions, few situations in which there was likely to be a high level of emotional involvement (such as dealing with terminally ill patients) and a low administrative workload. Alongside particular sources of stress, some demographic factors, such as male gender, have been found to predict job satisfaction (Cooper *et al.*, 1989).

What appears inconsistent conceptually, however, is that sources of stress are presented as predictor variables and job satisfaction is presented as an outcome variable, when these two variables are measured in very similar ways. In the study by Cooper, (Cooper *et al.*, 1989), for example, job stress was measured by asking GPs to rate the amount of stress they experience from 38 aspects of their work, such as night calls and contact with dying patients. Job satisfaction was measured using the Warr-Cook-Wall job satisfaction scale (Warr, Cook, & Wall, 1979), which asks participants to rate how satisfied they are with 15 aspects of work, such as their rate of pay and the amount of responsibility they hold. Both scales therefore require doctors to make assessments of how they feel about aspects of their work environment. The study by Rees and Cooper (1992) likewise uses measures of stress and satisfaction similarly grounded in the occupational environment.

So why is one a predictor and one an outcome variable? Stress at work has the status of a key variable in the development of mental ill-health, but job satisfaction does not. In fact, the relationship between job satisfaction and mental health has hardly been investigated. It has been widely demonstrated that individuals who experience high levels of stress in the performance of their work have a relatively high risk of developing poor mental health (for example, (Cooper *et al.*, 1989; Deary *et al.*, 1996b; Revicki & May, 1985; Sutherland & Cooper, 1993)). Yet if a doctor who perceives aspects of his or her work as highly stressful is at greater risk of developing poor mental health, it could perhaps be hypothesised that a doctor who experiences aspects of work as highly satisfying may have a *lower* risk of poor mental health. This could be a direct relationship, in that individuals experiencing high job satisfaction could be likely to have better mental

health than those with low job satisfaction.

High job satisfaction $\Longrightarrow$ Good mental health

Or it could be indirect, for example, in that experiencing high levels of satisfaction in the performance of one's work may in some way buffer or moderate the harmful effect of job stress on poor mental health.

High job stress $\Longrightarrow$ Good mental health

$\Uparrow$

High job satisfaction

It appears surprising that the possibility of their being such a relationship between job satisfaction and mental health has not been investigated, particularly among doctors, whose role has the potential to be enormously satisfying. Not only being relatively well-paid and conferring relatively high status, the doctors' role enables them to have the opportunity to influence the lives of some of their patients in a very positive way. A number of the aspects of work reported by doctors as stressful, such as having to break bad news to patients, are intrinsic parts of the doctors' role. While it may be possible to reduce the stress doctors experience in the performance of such tasks, through perhaps ensuring they are provided with the high level communication skills required for this, it is not possible to remove these tasks from their role altogether. Assessing the aspects of the doctor's role which contribute to job satisfaction may enable changes to be made which which enhance the job satisfaction doctors experience. If doctors' mental health *was* found to be related to their job satisfaction, investigating job satisfaction among doctors, in addition to job stress, may represent an opportunity for reducing poor mental health among this professional group.

2.4 Summary

Although a meaningful term in general life, stress has proved difficult to define. In the last twenty-five years, however, there has been a consensus in the literature that it is an oversimplification to conceptualise stress as either an environmental stimulus or the response to such a stimulus. In order to represent human complexity, stress should be conceived as an experience which occurs through an interaction between the individual and how he or she perceives the environment. In support of such a model, among doctors, both environmental sources of stress and individual characteristics have been identified as important factors in the development of poor mental health among doctors,

an outcome of experiencing stress. There is little agreement about what are the individual vulnerability factors for poor mental health among doctors. In comparison with occupational sources of stress, personal factors have often been found to explain a relatively smaller amount of variance in poor mental health among doctors.

With regard to occupational sources of stress, assessment of these among doctors has been characterised by studies which are often questionable in terms of their representativeness, through small sample sizes or poor response rates, and few studies have examined the importance of a broad range of sources of stress derived from doctors themselves. In spite of this, some particular aspects of work are often identified as sources of stress by doctors. The predominant source of stress is work overload, and there are confirmatory data from other sources to confirm that the workload of consultants has increased in recent years. Aspects of patient care are frequently described as sources of stress, including general features such as being responsible for patient outcomes, as well as a large number of specific aspects, such as serious treatment failures and dealing with death and suffering. Other aspects of work which have been identified as sources of stress generally are described as such less frequently by doctors, including relationship difficulties with superiors, colleagues and subordinates, role ambiguity and conflict, difficulties in career development and aspects of the organisational structure. However, the data on sources of stress for doctors in this country are derived largely from junior doctors, general practitioners, or doctors from one specific specialty and the extent to which they are relevant to senior hospital doctors remains unknown.

Job satisfaction has inspired far less research interest than job stress and theories of job satisfaction are largely undeveloped. Sources of job satisfaction for doctors focus largely on their interactions with patients, but doctors derive satisfaction in addition from the autonomy, variety and responsibility they have for their work. Again, these sources of satisfaction have been identified largely by junior doctors and general practitioners and the extent to which they are relevant to the work experiences of hospital consultants remains unknown. Although doctors often report very high levels of satisfaction with particular aspects of their role, there has been very little exploration of the extent and manner in which job satisfaction is related to job stress. Where a relationship is reported, the association appears to be moderate and negative, indicating that doctors experiencing greater stress at work experience less job satisfaction. The relationship between the satisfaction doctors derive from their work may have with their mental health has not been explored.

CHAPTER 3: Psychiatric morbidity and burnout

Individuals who perceive the demands of their environment as exceeding the resources they have available to meet them are likely to experience stress (Lazarus & Folkman, 1984). Experiencing stress is thought over time to cause harm to both physical and mental health. Research on physical health outcomes has found evidence to suggest stress is associated with a myriad of problems, including musculoskeletal disorders, diabetes, cancer, gastrointestinal illness, accidents, and reproductive problems (Kristensen, 1996). The bulk of research looking at physical disease has focused on heart disease, where there is now clear evidence of an association (for reviews see Cooper & Marshall, 1976; Theorell & Karasek, 1996; Schnall, Landsbergis, & Baker, 1994). Whilst heart disease is largely an affliction of older age, psychological problems affect the population across the full age spectrum. The focus of this thesis is on the relationship between stress and impairment to *mental* health.

The most widely used classificatory system of mental illness (DSM-IV (American Psychiatric Association, 1994)) distinguishes between psychoses, which are relatively rare, extremely debilitating and usually involve a major break with reality, and neuroses, predominantly anxiety and depression. It is the neurotic disorders rather than the psychoses for which stress experienced in the course of life particularly has been found to be a causal factor. Retrospective and prospective studies have clearly demonstrated that ongoing adversity in life ("difficulties") and more specific life events are followed by major depressive illness by some, though by no means all, individuals experiencing them (Brown & Harris, 1989; Hirschfeld & Cross, 1982; Paykel & Cooper, 1992).

Anxiety and depression are highly prevalent in the general population: according to the most recent government figures, 1 in 6 people in this country experience depression or anxiety at some point in their lives (Secretary of State for Health, 1999). In addition to the harmful effect of these illnesses on the individual, depression and anxiety bring a high cost for employers, with an estimated 80 million working days lost due to mental ill health, costing around £3.7 billion a year (Secretary of State for Health, 1999). As well as these specific costs, depression may be hypothesised to have more subtle effects on work, through impairing the ability of employees to perform effectively, with the symptoms of depression likely to result in slowness and mistakes, poor concentration and forgetfulness, disorganisation, poor time keeping, loss of creativity, and arguments with co-workers.

In the last 20 years instruments have been developed which enable the measurement of neurotic disorders in the general population. Development of these has enabled research to be carried out to increase our understanding of the role of work in the development of neurotic disorders, as well as investigate the prevalence of these disorders across

different occupational groups. Researchers have found it helpful to assess the prevalence of the neurotic disorders as a group, rather than as the individual illnesses which comprise this category of mental illness. When assessed as a group in occupational or general population samples, the neurotic disorders are usually termed psychiatric morbidity rather than mental illness (for example, (Jenkins *et al.*, 1997)). These studies are really measuring disturbance on the borderline between mental illness and mental health, and there is a view that the term mental illness implies too great a degree of disturbance. Other terms are also used, such as psychiatric disorder, psychological distress and emotional disturbance or distress, but psychiatric morbidity is the term used most frequently and will be used here.

In addition to pervasive psychiatric morbidity, pervasive in that it impairs all aspects of an individual's life and is not tied to a particular context, experiencing chronic stress at work is hypothesised to cause a specifically work-related form of psychological impairment, in the form of burnout. Burnout is a relatively new and controversial concept in the field of mental health and will be given correspondingly more attention in this chapter. Rather than having an aetiology which could arise from a number of sources, as is the case for psychiatric morbidity, burnout is conceptualised as resulting from stress experienced at work. The section on burnout will give a historical overview of the development of the concept, discuss the most popular currently held definition of burnout, examine some of the models put forward for the development of burnout, and discuss the specificity of burnout as being separate from more general negative affective states such as depression. The issue of whether burnout is restricted to those working in the human service professions will be addressed, along with individual factors affecting vulnerability to burnout.

3.1 Measuring psychiatric morbidity

In a clinical setting a diagnosis of a particular type of mental ill health is made by eliciting an individual's signs and symptoms and determining whether these match the definition of a particular syndrome. Identification of a syndrome enables treatment to be planned and the likely outcome predicted through accumulated knowledge about the causes, treatment and outcome of the same syndrome in other patients. In a research setting it is usually impractical, both financially and in terms of the time required, to carry out a psychiatric interview with each individual in the study population, some of whom may be unwilling, in any case, to submit to a clinical psychiatric interview. In order to enable psychiatric morbidity to be assessed nevertheless, self-report questionnaires have been developed to assess particular types of mental illness, in particular depression and anxiety. Their use is intended for individuals with mild illness; those with severe mental illness being unlikely to be able to complete a questionnaire. Examples of widely used questionnaires are the Centre for Epidemiological Studies Depression Scale (Radloff,

1977), the Beck Depression Inventory (Beck, Steer, & Garbin, 1988), and the Spielberger State-Trait Anxiety Inventories (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The specific definitions of various types of mental illness specifically delineated in the various classification systems (DSM-IV, ICD-10) have provided a fairly sound basis from which to develop paper and pencil instruments to assess particular types of mental illness. These questionnaires can provide very useful data in terms of comparing psychiatric morbidity among a number of different populations, examining change in the prevalence over time and examining links between psychiatric morbidity and social and clinical variables.

But what if researchers do not want to restrict themselves to particular types of mental illness, but rather want to estimate the prevalence of psychiatric morbidity more globally in a population? Developing an instrument to differentiate more generally between individuals who have psychiatric morbidity and those who are mentally well is rather more difficult in view of the fact that a range of different illnesses are subsumed under the heading of psychiatric morbidity. If the definition of mental illness is taken as being those disorders of function which have been systematically identified among patients treated by psychiatrists and with the range of different mental illnesses being treated by psychiatrists being diverse, this raises the question of whether the term mental illness has any construct validity, or, put another way, whether it has any meaning as an individual concept. This is not of particular concern to psychiatrists going about the daily business of diagnosing and treating patients, but it *is* of concern when thinking about whether a questionnaire could be used to distinguish people who have clinically significant psychiatric morbidity from those who do not. The question to be asked here is whether there are common signs or symptoms across all types of mental illness which could be used to differentiate between individuals with psychiatric morbidity and those who are mentally healthy.

Classification systems for mental illness are often used, though not always explicitly, in a hierarchical manner, in that if a patient has symptoms which meet the criteria for diagnosis of two illnesses, one more severe than the other (for example, schizophrenia and alcoholism), only the former diagnosis would be made (Goldberg & Williams, 1988). Evidence has been presented that all patients with mental illness show symptoms of disturbance at the lowest level of functioning. For example Maxwell (Maxwell, 1973) examined groups of patients categorised as having neuroses, affective psychoses and schizophrenia and found that all had symptoms of neuroses. Surtees and Kendall (1979) found evidence that 80% of a large sample of psychiatric in-patients, ie those with the most severe forms of mental illness, also exhibited disturbance at the lowest level of the hierarchy of psychiatric disorders, the exceptions being around half of patients with schizophrenia and mania. If patients with diverse diagnoses of mental ill-health show

symptoms of ill health at the lowest level, then this provides a means to estimate of the proportion of people in a particular population with mental illness, through measuring disturbances to normal functioning at the lowest level of the hierarchy. On the basis of this evidence, questionnaires have been developed which measure symptoms at the lowest level, predominantly symptoms of depression and anxiety. These questionnaires are not designed to distinguish between patients suffering different types of mental illness, but rather to distinguish individuals with psychiatric morbidity as a group from those who are mentally healthy.

Being able to distinguish between individuals with and without mental illness raises the question of where mental "health" ends and mental illness begins. It is clear from clinical work that rather than there being a clear-cut dichotomy between individuals with and without mental illness, individuals vary along a continuum of disturbance of increasing severity (Kendell, 1993). Through the systems of classification for mental illness psychiatrists have the means to identify individuals whose symptoms of mental ill health are of a degree of severity whereby they are causing impairment to the individual's daily life and for which professional intervention is likely to be helpful. In psychiatrists' terms, they are clinically significant. The task for a questionnaire is to identify, as accurately as possible, whether an individual is suffering clinically significant psychiatric morbidity, according to their responses to questionnaire items. Development of such questionnaires involves the development of questionnaire items which reliably distinguish between individuals with and without psychiatric morbidity. If the questionnaire items do distinguish between those with and those without psychiatric morbidity, an individual's likelihood of having clinically significant psychiatric morbidity will increase as their score on the instrument increases.

Such questionnaires can be used with a threshold score, which will indicate that if an individual scores at that point or above on the questionnaire, they are likely to have a clinically significant level of psychiatric morbidity. The most accurate threshold score can vary slightly across different populations and in order to identify the most accurate threshold score for a particular population, a validation study should be carried out. Participants complete the instrument and a clinical psychiatric interview, and the sensitivity and specificity of various threshold scores are compared. The sensitivity is the probability that a true case (ie a case identified using the psychiatric interview) will be correctly identified. The specificity is the probability that a true non-case will be correctly identified. The sensitivity and specificity are calculated for a range of possible threshold scores and the score at which both sensitivity and specificity are maximised will provide the most accurate estimate of the prevalence of psychiatric morbidity in that population, through providing the most accurate estimation of true cases and true non-cases. If a high score on the questionnaire is chosen as the threshold score, an individual would have to

experience a large number of symptoms in order to be identified as having clinically significant psychiatric morbidity. So the sensitivity would be low (not all of the individuals with psychiatric morbidity would be identified), but the specificity high (all of the individuals without psychiatric morbidity would be correctly identified). If a low score is chosen, the reverse situation exists. Individuals reporting only a few symptoms would be classified as having psychiatric morbidity, so the sensitivity will be high but specificity low. Hence the most accurate identification of individuals with psychiatric morbidity can be achieved by choosing the score at which the highest number of both true cases and true non-cases is identified.

3.1.1 Instruments to measure psychiatric morbidity

A number of instruments have been developed to measure general psychiatric morbidity, and validated against one of the psychiatric diagnostic systems. One such instrument is the Symptom Check List (SCL-90) (Derogatis, Lipman, & Covi, 1973), which measures chronic symptoms of psychiatric morbidity. Ninety items are rated according to the degree of distress they cause, data from the developers of this instrument demonstrates high internal consistency of the subscales (.77-.90) and test-retest reliability ranges from .78 to .90 (Derogatis, 1977).

The most widely used questionnaire to measure general psychiatric morbidity in this country currently is the General Health Questionnaire (GHQ) (Goldberg & Williams, 1988). There are several versions of the GHQ, containing between 12 and 60 items. The 28-item and larger versions measure psychiatric morbidity on a number of scales, for the 28-item version these are somatic symptoms, anxiety and insomnia, social dysfunction and severe depression.

The test developers' investigation of the psychometric properties of the GHQ-60 has demonstrated excellent reliability and validity. The split half reliability of the GHQ-60, calculated on 853 completed questionnaires, was 0.95 (Goldberg & Williams, 1988). With regard to internal consistency, Goldberg, cites Cronbach's alpha coefficients ranging from 0.82 to 0.93 across 6 studies of diverse community samples. Cronbach's alpha coefficients decreased slightly as the number of items in the questionnaire decreased, but for the 12-item GHQ the mean coefficient was 0.85, which remains good (Goldberg & Williams, 1988). Further studies examining the reliability of the GHQ have proved difficult to locate. Even in studies evaluating the psychometric properties of the GHQ, rarely are assessments of the reliability of the instrument given (Banks, 1983; Bellantuono, Fiorio, Zanotelli, & Tansella, 1987; Mari & Williams, 1985; Pan & Goldberg, 1990; Radovanovic & Eric, 1983; Shamasundar, Krishna Murthy, Prakash, Prabhakar, & Subba Krishna, 1986). The original data without doubt demonstrate excellent reliability, but it is nevertheless surprising that subsequent studies appear to accept these data as

conclusive, particularly where the GHQ is used in non-UK samples.

Goldberg and Williams (1988) present a comprehensive review of the validity of the GHQ, demonstrating that the GHQ has construct validity, through investigation of its factor structure. He summarises some findings indicating it has predictive validity, for example high GHQ score predicted subsequent consultation with general practitioner, though lists two studies which have also failed to find any association. What is of most interest for the use to which the GHQ is to be put here, estimation of the prevalence of psychiatric morbidity in a population, is to investigate how valid it is as an instrument to identify psychiatric morbidity in an individual. The criterion for validity appropriate for this is a structured clinical interview carried out by a trained health professional. The summary by Goldberg indicates that all versions of the GHQ have demonstrated good validity in predicting psychiatric morbidity (Goldberg & Williams, 1988). Regarding other investigations of validity, the 12-item version of the GHQ was utilised for the current research, and validity studies for this version only are discussed here. Studies investigating the validity of the GHQ-12 against a structured clinical interview are shown in table 3.1. Generally they demonstrate that individuals identified as having clinically significant psychiatric morbidity by one of the standard psychiatric interviews can be also identified as such using the GHQ-12 with a good degree of accuracy. The percentage of true cases identified ranges from 71% among a sample of young people in the UK (Banks, 1983) to 91% of a sample of Yugoslav medical students (Radovanovic & Eric, 1983), with a similar proportion of true non-cases identified across the studies. These validity figures are similar to those found for longer versions of the GHQ. For example, Stansfield and Marmot (1992) found a 73% sensitivity and 78% specificity for the GHQ-30 against the CIS among a sample of 179 civil servants. A meta-analysis of 43 validity studies cited by Goldberg and Williams (1988) reports the mean sensitivity for the GHQ-12 as 89% (95% confidence intervals (CI) 85%, 92%) and specificity 80% (95% CI 77%, 83%). These data demonstrate that the psychometric properties of the GHQ are robust and predictable, and that it can be used to estimate psychiatric morbidity across diverse populations.

Table 3.1-*Validity studies for the GHQ-12, providing sensitivity and specificity at the threshold score found to most accurately identify psychiatric morbidity against a psychiatric interview*

Author	Sample, comparison instrument	Sensitivity, specificity and threshold score
(Banks, 1983)	200 UK 17-year- olds (half employed, half unemployed), Present State Examination (PSE) (Wing, Cooper, & Sartorius, 1974)	Sensitivity 71%, specificity 80% (threshold score of 2\3)
(Bellantuono *et al.*, 1987)	90 Italian primary care attenders, Clinical Interview Schedule (CIS) (Goldberg, Cooper, Eastwood, Kedward, & Shepherd, 1970)	Sensitivity 81%, specificity 71% (threshold score 2\3)
(Borrill *et al.*, 1996)	615 NHS staff from 6 hospital trusts, including consultants, Clinical Interview Schedule-Revised (Lewis, Pelosi, Araya, & Dunn, 1992)	Sensitivity 73%, specificity 86% (threshold score 3\4)
(Mari & Williams, 1985)	260 Brazilian primary care attenders, CIS	Sensitivity 85%, specificity 83% (threshold score 3\4)
(Pan & Goldberg, 1990)	104 Chinese primary care patients in Manchester, CIS	Sensitivity 78%, specificity 73% (threshold score 2/3)
(Radovanovic & Eric, 1983)	151 Yugoslav medical students, Standardized Psychiatric Interview	Sensitivity 91%, specificity 76% (threshold score 1\2)
(Shamasundar *et al.*, 1986)	144 Indian primary care attenders, Indian Psychiatric Survey Schedule	Sensitivity 87%, specificity 93% (threshold score 1\2)
(Van Hemert, Den Heijer, Vorstenbosch, & Bolk, 1995)	290 Dutch medical out-patients, PSE	Sensitivity 72%, specificity 75% (threshold score 5\6)

3.1.2 Scoring the GHQ-12

Since the GHQ-12 is the instrument used in this study to estimate the prevalence of psychiatric morbidity, some specific issues regarding its use will be examined here. First of all, some questions arise about how to score this instrument. Of the twelve items in this version of the GHQ, six reflect an inability to carry out normal healthy functions, such as concentrate or make decisions, and six reflect the appearance of new phenomena of a distressing nature, such as losing sleep over worry or feeling constantly under strain. Responses to each item are given on a four-point scale according to the relative frequency with which they have been experienced: less than usual/same as usual/more than usual/much more than usual.

There are alternative methods of scoring the GHQ, of which the main two are:

(i) the "Likert" method, in which weights of 0, 1, 2, 3 are assigned to responses.

(ii) the "GHQ" method, in which weights of 0, 0, 1, 1 are assigned to responses.

The GHQ method simply counts symptoms and is therefore an "area" measure while the Likert method also gives some measure of intensity. A comparison of the accuracy of these methods in terms of case identification (cases having been identified using a standardised clinical interview) indicated they were similar. The percentage of cases mis-classified using the Likert method was 12.6%, compared with 13.3% using the GHQ method (Goldberg & Williams, 1988). Goldberg himself describes it as surprising that there is such little difference in the mis-classification rate when such a lot of information is lost using the GHQ method, but suggests that the information lost is not useful for case identification. In studies appearing in the literature is usual for the Likert method to be used when researchers are looking at intensity of psychiatric morbidity, usually by calculating mean scores, and for the GHQ method to be used to estimate prevalence (for example, Firth, 1986). In the current study a cut-off score was used to give an overall idea of the extent to which consultants were experiencing a clinically significant level of psychiatric morbidity, since a percentage is more readily interpreted than a mean score. For the same reason, this method was used to illustrate graphically associations between job stress and satisfaction and psychiatric morbidity and burnout, since what was potentially interesting was the proportion of consultants with *clinically significant* psychiatric morbidity and a *high* level of burnout according to whether their stress and satisfaction levels were low vs moderate vs high. However, the scale scores on the GHQ and burnout scales were used for the statistical analyses of associations between psychiatric morbidity/burnout and job stress, job satisfaction and job/demographic factors, as continuous data are more powerful than binary data.

3.2 Burnout

Burnout is described widely in the literature as a syndrome of exhaustion, disillusionment and withdrawal which can develop as a result of prolonged exposure to high levels of stress at work. In contrast to pervasive psychiatric morbidity, burnout is conceptualised as a specifically work-related form of poor mental health. Its specificity to the workplace appears to be two-fold. First, it is seen as experienced only in the context of the

workplace. For example Schaufeli defines it as " a persistent, negative, work-related state of mind in "normal" individuals....", normal as in they do not suffer any more general psychological impairment (Schaufeli, 1999). It is also specifically work-related in aetiology, being hypothesised to develop as a result of chronic exposure to stress at work, particularly when the stress arises from emotionally demanding interactions with other people (Cherniss, 1980) . Individuals whose work involves dealing with other people's physical, psychological or social problems are likely to be often involved in psychologically or emotionally demanding interactions with the recipients of their care, and it is professionals working in these areas who are perceived as being particularly at risk of burnout (Maslach, Jackson, & Leiter, 1996). Doctors, through their role of investigating and treating others' physical and psychological problems, form one of the occupational groups hypothesised as being particularly at risk of burnout. For doctors, the importance of burnout lies in its implications not only for personal suffering, but also in the risk it carries for impairing the delivery of health care.

3.2.1 Development of the concept of burnout

Burnout as a term appears to be intrinsically meaningful, yet a clear definition has proved elusive. Initial ideas about the concept have been around from the middle of the century, for example Schwartz and Will (1953) described low morale and withdrawal among staff on a mental ward. Interest in the idea really exploded, however, in the 1970s, most prominently with an article by Freudenberger (Freudenberger, 1974) who described how he and colleagues had become burnt out after a time working intensively with drug addicts. Freudenberger described burnout according to the dictionary definition: "*to fail, wear out, or become exhausted by making excessive demands on energy, strength or resources*" (Freudenberger, 1974; p159). He described the state of burnout as one which affects different individuals in different ways but that individuals commonly felt exhaustion and fatigue, often with minor physical symptoms such as a lingering cold, frequent headaches or gastrointestinal disturbances. The individual would be quick to anger, would become rigid, stubborn and inflexible in his or her thinking, would appear depressed and would often become the "house cynic" (p161). This description was purely anecdotal, based on his observations of those he worked with.

At this time other authors had begun to describe a syndrome of emotional distress at work in similar terms. Maslach and colleagues discovered a syndrome which they also called burnout while carrying out research on how individuals keep their emotional arousal under control at work, particularly in work situations likely to stimulate high arousal, such as those experienced by fire fighters and staff in casualty departments (Maslach & Jackson, 1984). In 1976, Maslach reported how some of the social and health professionals she studied described feeling burned out after some time of dealing intensively with others' physical, social and psychological problems. Based on interviews with 200 health and

social service professionals she reported how these professionals "lose all concern, all emotional feeling for the persons they work with and come to treat them in detached or even dehumanized ways" (Maslach & Jackson, 1984; p16). These professionals reported using a number of techniques to distance themselves from their client group, including using derogatory or technical labels ("he's a coronary"), communicating in an impersonal way through the use of "superficial generalities, stereotyped responses and form letters" and doing the job "by the book" (p18). Maslach described becoming burned out as "the transformation of a person with original thought and creativity on the job into a mechanical, petty bureaucrat" (p18) and reported that it often lead to a deterioration of physical well being in terms of exhaustion and psychosomatic illness such as insomnia and migraine headaches.

As interest in the concept grew, numerous papers appeared in the USA in the late 1970s and early 1980s describing burnout among a whole range of individuals whose work involved dealing with people. These papers were almost entirely anecdotal or descriptive and all used their own individual definition of burnout. Examples from a review of different definitions (Perlman & Hartman, 1982) includes that by Kahn (1978) who described among workers generally a "syndrome of inappropriate attitudes towards clients and self, often associated with uncomfortable physical and emotional symptoms with deterioration of performance" (p286). From the same review Seiderman (1978) described "the depletion of personal resourcefulness, flexibility and positive energy individuals ordinarily possess" (p287) among child-care workers. Muldary (1983) describes a loss of enthusiasm and commitment, impaired ability to attend, concentrate, engage in complex thinking and problem solving, loss of empathy and caring, "it's not my job" (p.13).

As a result of this emphasis on unsubstantiated opinion rather than systematic investigation the definition of burnout became so wide that almost nothing was excluded as a symptom (see table 3.2, for example). These extensive lists of symptoms arose because of the weak theoretical foundations on which most of the early research was based, which failed to differentiate between precursors, consequences and indicators of burnout (Leiter & Durup, 1994). Many of the symptoms cited were probably correlates of burnout, rather than core aspects of the syndrome and in most cases there was no research to support their inclusion as core aspects. The detrimental effect of burnout being defined often as a syndrome of such varied aetiology, symptomatology, management and outcome was that it came to be seen by some as a "popular fiction" rather than a "concrete reality" (Muldary, 1983; p4). The use of a such a "popular" term to define the syndrome perhaps has made it more difficult to gain scientific credibility.

Table 3.2 - *Signs and symptoms of burnout (see also (Muldary, 1983; Cherniss, 1980))*

Emotional	Loss of humour and gallows humour Persistent sense of failure, guilt and blame Cynical blaming attitude towards patients Frequent anger, resentment and bitterness Increasing irritability, family and marital conflict Feelings of discouragement and indifference Eventually becoming resigned to lack of power Becoming preoccupied with own needs and personal survival
Behavioural	Frequent clock watching Increasing resistance to go to work each day Postpone patient contacts, resist calls and visits Increasingly go by the book, loss of creative problem solving Work harder to achieve less Avoid discussing work with colleagues Increasing social isolation Increasing use of mood-altering drugs
Physical	Feel tired and exhausted all day Sleep disorders Frequent and long-lasting minor ailments Increasing use of sick leave, high absenteeism Accident proneness
Cognitive	Increasing thoughts of leaving job Inability to concentrate on or listen to what patient is saying Rigid thinking, resist all change Increasing suspiciousness and distrust See patients as objects rather than people Stereotype patients

In the early 1980s several authors began to take a more systematic approach to research on burnout. Perlman and Hartman (1982) carried out a review of all the "writings" on the subject (press articles and unpublished manuscripts as well as conference proceedings and papers in journals) which appeared between 1974, when the term first appeared, and 1980. They carried out a content analysis of definitions of papers listed and synthesised this into a definition of burnout as: "A response to chronic emotional stress with three components: (a) emotional and/or physical exhaustion, (b) lowered job productivity, (c) overdepersonalization". They found no evidence that any of the other symptoms cited as components of burnout, such as rigidity, anger or cynicism, were indeed so. It is difficult to evaluate this piece of research, however, because the authors provide no details at all of the methods they used in their content analysis. In addition, using a systematic approach to analyse unsystematically collected research data could cause these findings to be seen as questionable.

The most important development for the conceptualisation of burnout arose from the

empirical approach taken by Maslach and Jackson whose development of the Maslach Burnout Inventory (MBI) produced both a more precise definition of burnout and a standardised measure of it (Maslach & Jackson, 1981).

The initial stage of the development of the MBI involved the generation of 47 items in the form of personal statements or attitudes, which were hypothesised to measure aspects of burnout (Maslach & Jackson, 1981). These were developed from the authors' previous research and the existing literature on burnout. These items were rated by 605 individuals working in a variety of health and service occupations (such as teachers, social workers, police and physicians) on a 7-point frequency scale ("never" to "every day") and 7-point intensity scale ("very mild, barely noticeable" to "very strong, major"). Factor analysis produced ten factors, which were reduced to four after retention of only the most robust items. Similar factors were produced by the analysis using the frequency and intensity ratings. The 25 items loading on to these four factors were rated again by a new sample of people working in a comparable range of jobs and a confirmatory factor analysis produced a very similar factor structure. Maslach and Jackson therefore combined the results from the two sets of participants to produce a final analysis using data from all 1025 participants (Maslach & Jackson, 1981). Three of the four factors identified from this analysis had eigenvalues greater than one and were designated as subscales of burnout. The factors and items which load on to them are shown in table 3.3.

The emotional exhaustion and depersonalisation subscales were reported by Maslach as moderately correlated (.44 and .50 for frequency and intensity respectively), while correlations between the personal accomplishment and other two subscales were found to be much lower (-.05 to -.28) (Maslach & Jackson, 1984). A recent meta-analysis has confirmed that emotional exhaustion and depersonalisation are consistently more strongly correlated (.64) than either of these with personal accomplishment (-.33 and -.36) (Lee & Ashforth, 1996).

Table 3.3 - *The three subscales of burnout as conceptualised in the Maslach Burnout Inventory and the items which load on to them*

Factor	Items
Emotional exhaustion	I feel emotionally drained from my work I feel used up at the end of the workday I feel fatigued when I get up in the morning and have to face another day on the job Working with people all day is a real strain for me I feel burned out from my work I feel frustrated by my job I feel I'm working too hard on my job Working with people directly puts too much stress on me I feel like I'm at the end of my rope
Depersonalisation	I feel I treat some recipients as if they were impersonal "objects" I've become more callous towards people since I took this job I worry that this job is hardening me emotionally I don't really care what happens to some recipients I feel recipients blame me for some of their problems
Personal accomplishment	I can easily understand how my recipients feel about things I deal very effectively with the problems of my recipients I feel I'm positively influencing other people's lives through my work I feel very energetic I can easily create a relaxed atmosphere with my recipients I feel exhilarated after working closely with my recipients I have accomplished many worthwhile things in this job In my work, I deal with emotional problems very calmly

The three-factor structure of burnout developed by Maslach has now been replicated widely, across diverse samples (Shirom, 1989; Byrne, 1993; Schaufeli, Daamen, & Van Mierlo, 1994; Leiter & Durup, 1994; Gupchup, Lively, Holiday-Goodman, Siganga, & Black, 1994; Evans & Fischer, 1993) and both exploratory and confirmatory factor analyses have most commonly found that a three factor structure provides the best fit to the data. The fact that an inductive rather than a deductive technique was taken to the development of the subscales, ie the scales were labelled after factor analysing the data, rather than being theoretically deduced before the test was constructed (Maslach & Schaufeli, 1993), demonstrates how this definition of burnout has developed in a pragmatic rather than a theoretical way. This is thought to weaken the instrument psychometrically (Schaufeli & van Dierendonck, 1993) and perhaps explains why the factor structure of the MBI does not remain entirely free of criticism.

Through this process burnout was defined as a syndrome with three related but

independent dimensions: high emotional exhaustion and depersonalisation and low personal accomplishment. Emotional exhaustion refers to feeling emotionally overextended by work, feeling that one's emotional resources are used up and that they can no longer give of oneself or be as responsible for clients as before. Depersonalisation refers to treating people at work in an unfeeling way, becoming more callous emotionally and ceasing to care very much what happens to clients. Low personal accomplishment refers to the tendency to evaluate oneself negatively at work and to feel low levels of competence and achievement. Maslach and Jackson's approach has produced the most widely accepted definition of burnout, and the most commonly used measure of the syndrome. It is interesting that the definition Maslach arrived at using empirical methodology is almost identical to that produced by Perlman and Hartman's qualitative approach.

In the case of depersonalisation, it has been pointed out that some detachment and realism are probably adaptive (Cherniss, 1980). Going back to Maslach's early research, it is to be expected that, to take an extreme example, the performance of emergency medical crew would be likely to be impaired if they were often shocked and upset when arriving on the scene of an accident and, in fact, a degree of emotional detachment is probably necessary for optimal performance of their role. The development of "detached concern", being available to others and caring about them, but in a way which enables the professional to retain their objectivity and ability to perform their role, has been seen as useful for doctors, who have even been provided with training in this (Golembiewski, Munzenrider, & Carter, 1983). Loss of idealism and apathy could also be protective: high commitment in a situation in which failure is frequent could lead to frustration and high strain (Cherniss, 1980). Some authors have taken account of this by labelling depersonalisation "overdepersonalisation" (Perlman & Hartman, 1982), but most stick to the former term. The line, which would appear to be fine, between what is perceived as "healthy" detached concern and "unhealthy" depersonalisation has not been researched to date.

3.2.2 Models of burnout

Most authors appear to hold the view that broadly, burnout develops as a result of excessive job stress over a period of time. Roberts (1986), for example describes how "an individual begins to be affected when his threshold for stress tolerance is consistently crossed" (p194) . Beyond this there was for a long time very little theorising about how burnout developed and the lack of any psychometrically validated measure of burnout prevented systematic testing of any theory which had been presented. Criticisms have been made of the lack of longitudinal, theory driven research into the development of burnout and the failure of research in this area to draw on the established literature on stress, particularly relating to occupations (Meier, 1983). In the 1990s, with the wide

acceptance of the MBI as a reliable and valid measure of burnout, this situation has begun to be rectified.

Burnout as emotional overload

Cherniss (1980) was one of the few early burnout researchers to present a description of how burnout develops within the framework of more established stress theory. This theory was based on data he collected from interviews with 28 professionals who were starting careers in helping professions. He describes burnout as a transactional process occurring between the individual and their perception of their environment, which corresponds to the currently accepted interactional conception of stress. According to Cherniss burnout is a process occurring in three stages.

> *"The first stage involves an imbalance between resources and demand (stress). The second stage is the immediate, short-term emotional response to this imbalance, characterised by feelings of anxiety, tension, fatigue, and exhaustion (strain). The third stage consists of a number of changes in attitude and behaviour, such as the tendency to treat clients in a detached and mechanical way or a cynical preoccupation with gratification of one's own needs (defensive coping)"* (p18).

Broadly, burnout is perceived by Cherniss as a process whereby a worker who was previously committed to their work disengages psychologically from that work as a result of experiencing stress at work. The process is thought to occur after active attempts to cope with stress, such as, for example, trying to get more resources to deal with the problem, have failed. Burnout is seen as a defence mechanism to protect the individual from a work situation they experience as intolerable. The loss of concern for those for whom the employee provides care is seen as a means of protecting the employee from experiencing stress when, for example, the recipient of care cannot be helped, is not grateful, or organisational constraints limit what can be done. In addition, Cherniss argues that coping with stress consumes a lot of energy, reducing that which is available for empathy and caring, particularly in helping relationships which can often be psychologically demanding. This conceptualisation of burnout ties in very well with current conceptualisations of the stress process. Preliminary efforts to provide empirical support for this model have met with some success. Path analysis has demonstrated relationships between the variables in the expected directions, with work characteristics having a direct relationship with burnout and also an indirect one via experienced stress (Richardsen & Burke, 1995), but this evaluative research is still at an early stage.

Cherniss also ties the concept of burnout in with *learned helplessness*, defined by Seligman as the belief that one does not have any control over important rewards and punishments as a result of having previously experienced this to be the case (Cherniss, 1980). He hypothesises that once an individual has learnt that he or she cannot control

the outcome of interactions with clients, perhaps after repeated attempt to solve clients' problems through active means have resulted in failure, intrapsychic defensive coping measures, such as depersonalisation, may become more likely. While this provides a plausible explanation for how burnout develops, there are as yet no empirical data to back it up.

Maslach and colleagues have provided a very similar theoretical explanation to that provided by Cherniss for the development of burnout. They perceive burnout as arising when a person becomes emotionally exhausted as a result of the chronically demanding environment characterised by emotionally charged interactions with recipients (Leiter & Maslach, 1988). Spending time with troubled people can involve difficult emotions, such as embarrassment and frustration and the chronic tension of this can lead to emotional exhaustion (Maslach & Jackson, 1981). Emotional exhaustion is thought to bring about negative attitudes towards clients (depersonalisation) as the individual attempts to gain emotional distance as a way of coping with their exhaustion. Ceasing to care so much about the recipients of ones care is thought to result in work losing its meaning and together with the ongoing exhaustion this results in reduced perceptions of achievement at work. Empirical evidence using path analysis of data from diverse occupational groups has provided some support for the model, with the exception that the hypothesised relationship between depersonalisation and personal accomplishment has been found to exist but only rather weakly (Richardsen & Burke, 1995; Leiter, 1993).

This model has therefore been reformulated (Leiter, 1993) to conceive emotional exhaustion and low personal accomplishment as developing in parallel in response to the demands of the work environment, while depersonalisation occurs both as a direct result of emotional exhaustion and also as a result of environmental variables mediated by emotional exhaustion. Some data collected from 307 health workers support this reformulated model of burnout, in that structural equation modeling of the data suggested that there were causal relationships between the burnout dimensions as specified (Leiter & Durup, 1994). Factor analysis produced an underlying burnout factor, which was found to account for only a tiny proportion of the variance in personal accomplishment (7%) compared to that in both emotional exhaustion (69%) and depersonalisation (42%). This ties in with Leiter's idea that low personal accomplishment does not arise directly from emotional exhaustion or depersonalisation, but is "a crisis of self-efficacy arising from the same imbalance of demands to resources which causes emotional exhaustion" (p 371). A meta-analysis of the correlates of burnout has concluded that the relationships found were consistent with this conceptualisation (Lee & Ashforth, 1996).

Burnout as the result of a lack of reciprocity

While the previous models conceptalise burnout as developing as a result of emotional

overload, others perceive lack of reciprocity in the relationship with the recipients of one's care as an important causal factor. Van Dierendonck, Schaufeli, & Sixma (1994) proposed and tested a model of how burnout develops based on equity theory. According to equity theory, people expect that what they invest in and gain from a relationship will be equivalent to what the other person invests and gains. If that expectation is not met, a degree of tension is likely to be experienced, and it has been suggested that experiencing this over time may result in burnout. This model has been evaluated in a study of GPs, a professional group hypothesised as having difficulty perceiving equitable relationships with the recipients of their care, because the basis of the relationship is that GPs give care to patients. Where the inequity is stretched further, for example when GPs are harassed by patients through calling the doctor out at night for a minor ailment, it is hypothesised that GPs would to experience tension. These emotionally demanding relationships with patients are seen as key to understanding burnout in doctors and job demands relating to patient contact, patients' expectations and interruptions by patients have been found to have a negative impact on doctors' job satisfaction and mental health (Cooper *et al.*, 1989). Most of the strategies available to doctors to reduce tension, such as retaliation or demands for compensation, are not available within the doctor-patient relationship. Therefore GPs are likely to use psychological techniques to restore equity, such as developing negative attitudes towards patients.

Van Dierendonck and colleagues' model proposed demanding relationships with patients (harassment) were indirectly related to burnout through the experience of inequity, and also through a lack of social support. GPs perceptions of inequity were indeed found to be related to emotional exhaustion, as predicted, and harassment by patients was related to emotional exhaustion through perceptions of inequity (van Dierendonck *et al.*, 1994). Social support also mediated the harassment-emotional exhaustion relationship, but much more weakly. Depersonalisation and personal accomplishment were only weakly correlated with inequity (.33 and .22 respectively) and were not significant in the model. The cross-sectional self-report nature of the data, however, render any conclusions drawn to be only tentative; the relationships require identification in longitudinal data.

Schaufeli, van Dierendonck, and van Gorp (1996) expanded this model to involve social exchange at both the interpersonal (interaction between caregiver and recipient) and organizational (employee and organization) levels. They proposed a model in which a lack of reciprocity at both the interpersonal and organizational level, ie the perception that you invest more in your patients and in your hospital than you receive back in return, is likely to result in burnout. They also propose that a lack of reciprocity at the organizational level is also likely to result in a reduction in organizational commitment, a construct which has been found in meta-analytical studies to lead possibly to lateness, poor attendance and turnover (Schaufeli *et al.*, 1996). Using structural equation modelling, this model

provided a reasonable fit with data collected from 220 student nurses and then cross-validated on a further sample of 142 student nurses.This study has important implications for interventions to reduce burnout, suggesting that interventions should contain input at both the professional-client and employee-organization level to be effective. Again, however, the cross sectional design is a limiting factor and the perception of a lack of reciprocity at both the interpersonal and organizational levels could simply be accompanying factors for burnout among nurses or could even result from burnout.

Other causal factors

One final point to make about investigations of how burnout develops is that it has been suggested that a model of the determinants of burnout must look, in addition to job stress, at other aspects of the work environment, such as those which influence motivation, job involvement and satisfaction (Eisenstat & Felner, 1984). Data collected from 168 human service workers indicated that while emotional exhaustion was strongly positively associated with job stress, personal accomplishment was much more strongly associated with aspects of job satisfaction, such as autonomy, variety and feedback from clients. This indicates that the burnout dimensions have differential relationships with other work variables. Relationships with job involvement (the degree to which a person identifies psychologically with his/her job and perceives it as important in terms of self-image; Lodahl and Kejner (1965)) were interesting. Individuals who had higher levels of involvement with their job as a whole reported lower emotional exhaustion. This may mean that workers who are more involved with their work are protected from emotional exhaustion, or alternatively that those with emotional exhaustion have become less committed to their job - the correlational nature of the data make it impossible to distinguish which is the case. Higher levels of involvement with clients were associated with higher emotional exhaustion and depersonalisation, but higher overall and client involvement were both positively associated with personal accomplishment. Feedback from clients was more important then from staff or supervisors in terms of personal accomplishment, but the reverse was true for general job satisfaction. The data were once again cross-sectional and some of the relationships were quite weak, but this and the other research discussed suggests that relationships between aspects of work and the three dimensions of burnout are more complicated than has been presented previously. Once again, further research is required to clarify how the three burnout dimensions interrelate, but clearly relationships should be investigated with broader work variables than just stress.

In the last decade research on burnout has made some progress in developing and testing theory about how burnout develops and sensible attempts have been made to fit burnout into a wider theoretical framework. As yet, however, the research has been rather piecemeal, with authors carrying out fairly narrow studies to put forward support for the

specifics of their own theory. There is some evidence to support the hypothesis that burnout develops in response to having to deal with emotionally demanding relationships with clients, with emotional exhaustion appearing to arise first, leading on to depersonalisation, and low personal accomplishment appearing to develop relatively independently. It does also appear to be the case that a lack of reciprocity in relationships of healthcare workers and the recipients of their care could be a causal factor in the development of burnout in this occupational group. These results are encouraging, although a lot of questions about how burnout develops remain to be answered.

3.2.3 Is burnout important?

Burnout was described by early researchers as having important personal and organizational consequences. Personal consequences were described as "physical exhaustion, insomnia, increased use of alcohol and drugs, and marital and family problems" and organisational consequences as "deterioration in the quality of care or service provided by staff" together with "job turnover, absenteeism, and low morale" (Maslach & Jackson, 1981; p100). Empirical research has indicated that burnout is indeed associated with a variety of mental and physical health problems and relationship difficulties (Cordes & Dougherty, 1993) and with a whole range of negative attitudes at work, such as job dissatisfaction (Golembiewski *et al.*, 1983) and turnover intention (Richardsen & Burke, 1995). There has been, however, very little research examining the relationship between burnout and concrete organisational consequences, such as poor performance or leaving one's job (Cordes & Dougherty, 1993). In one of the few studies to investigate this Wright and Bonett (1997) found a relationship among 44 human service workers between emotional exhaustion and work performance three years later (assessed systematically by a panel of three departmental supervisors). The relationship was not found for depersonalisation or low personal accomplishment, though the authors suggest ratings of performance by clients may be necessary to pick this up. No relationship was found between emotional exhaustion at time one and work performance at time one. Parker and Kulik (1995) found emotional exhaustion was significantly related to ratings of nurses' performance made on five scales by their supervisor, together with a higher number of days taken off work for mental health reasons. Overall, the evidence which exists seems to indicate that burnout is certainly associated with negative personal consequences and with negative organisational consequences in terms of attitudes, but further research is needed to establish the importance of burnout in terms of actual behaviour at work.

3.2.4 Psychometric properties of the MBI

Reliability of the MBI

The internal consistency of the MBI scales reported by the developers of the instrument from their initial analysis was good, ranging from .89 for emotional exhaustion to .74 for

personal accomplishment (Maslach & Jackson, 1981). A review of eight more recent studies has found alpha coefficients ranging from .79 to .91 for emotional exhaustion, .52 to .81 for the depersonalisation subscale and .69 to .87 for the personal accomplishment subscale (Byrne, 1994). Test-retest reliabilities from the initial analysis after 2-4 weeks for graduate students were good for emotional exhaustion (.82) and personal accomplishment (.80), but moderate/low for depersonalisation (.60) (Maslach & Jackson, 1981). Maslach and Jackson (1986) report lower test-retest reliabilities (.54-.60) among teachers after a one-year interval, but this may reflect changes in the teachers' experience of burnout after so long a time period rather than unreliability in the instrument. Studies carried out more recently by other authors have found good levels of reliability (Green, Walkey, & Taylor, 1991) and the MBI appears psychometrically robust in this respect. In addition, low and non-significant correlations have been reported between scores on the MBI and on social desirability scales (Maslach & Jackson, 1981; Maslach & Jackson, 1986; Jackson, Schwab, & Schuler, 1986), indicating that the scale is not subject to this type of bias.

Validity of the MBI

Convergent validity

Maslach and Jackson (1981) provide some initial evidence for the convergent validity of the MBI, finding associations between MBI scores and other assessments of burnout. Using co-worker assessments among a group of 40 mental-health workers, those who were assessed as being "emotionally drained" and "physically fatigued" scored more highly on the emotional exhaustion and depersonalisation subscales and those who were assessed as complaining more about patients had higher depersonalisation scores. Using a similar method, the authors compared the MBI scores of 147 police officers with spouses' assessments of their behaviour at home (Maslach & Jackson, 1986). Emotional exhaustion scores were significantly related to officers being assessed as coming home upset and angry, tense or anxious, physically exhausted and complaining about problems at work. Further evidence for the validity of the emotional exhaustion subscale was provided by Rafferty, Lemkau, Purdy and Rudisill (1986) who found doctors' scores on this subscale were correlated with assessments of their burnout made by the medical director and a psychologist who worked with them. Relationships were not consistently found for the other two subscales.

Higher burnout scores on the MBI have been found among those whose jobs consisted of characteristics hypothesised as likely to cause burnout, such as high caseloads (Maslach & Jackson, 1981). In a similar vein Jackson *et al* (1986) hypothesised various antecedents and consequences of burnout and looked for relationships. For example, they hypothesised that emotional exhaustion is likely to occur among individuals experiencing high levels of role conflict, because attempts to meet incompatible demands

are likely to be frustrating and emotionally draining. Among a sample of US teachers high levels of role conflict did predict emotional exhaustion one year later (according to regression analysis), though other aspects hypothesised as associated, such as unmet organisational expectations, were found not to be. In the same way low personal accomplishment was hypothesised to be likely in the presence of job conditions likely to imply the individual's efforts are ineffective and/or unappreciated, such as lack of performance-contingent rewards, lack of autonomy and lack of support from colleagues and superiors. Of these job conditions, only lack of support from colleagues and supervisors was associated with low personal accomplishment. In terms of the consequences of burnout, emotional exhaustion at time one predicted both having obtained training for a job outside teaching and having changed jobs one year later. Overall the authors found support for some but not all of the hypothesised antecedents and consequences, which they present as evidence for the validity of MBI.

Surprisingly few studies have examined the convergent validity of the MBI by investigating its relationship with the next most widely used instrument to measure burnout, the Burnout Measure (Pines, Aronson, & Kafry, 1981). Schaufeli and van Dierendonck (1993) describe three studies which have found moderate positive correlations between the overall burnout measure and emotional exhaustion and depersonalisation scales of the MBI (.50 to .70) and weak negative correlations with personal accomplishment (-.25). Corcoran (Corcoran, 1995) reports good subscale correlations of between .54 and .72 between emotional exhaustion and depersonalisation and each of the three subscales of the Burnout Measure, and a correlation of the overall scores on each scale of .75.

Discriminant validity

Some preliminary evidence for the discriminant validity of the MBI was provided by Maslach and Jackson (1981), who cite their finding that job satisfaction measured by the JDS was correlated weakly and negatively with emotional exhaustion and depersonalisation (-.23 and -.22 respectively), each explaining less than 6% of the variance in the other, as evidence that burnout is not the same as job dissatisfaction.

A comprehensive analysis of the convergent and discriminant validity of burnout as defined by the MBI using a multitrait multimethod analysis has not yet appeared in the literature (Cordes & Dougherty, 1993). Using this method, the relationship between tests of a construct are seen as being influenced by both their content and the method of assessment. Tests of the same construct using different methods of assessment should be more highly correlated than tests of hypothetically unrelated constructs measured using similar methods of assessment. A study by Meier (Meier, 1984) is as near to an examination of the validity of burnout as has been carried out to date using this method. Strictly speaking more than one mode of measurement should be used for each construct,

but as Meier points out there are no other widely accepted measures of burnout other than self-report. Meier therefore looked at the relationships between three different self-report measures of burnout (one of which was the MBI), and three measures each of depression and orderliness, the latter chosen as a concept which was hypothetically unrelated to burnout. Data were collected from university lecturers in the USA. Meier found that the MBI was moderately correlated with the different measures of burnout (.61 and .65) indicating adequate convergent validity, and that discriminant validity was indicated by the low, negative correlations with the measures of orderliness. However, the measures of burnout, as well as being moderately correlated with each other were also correlated at .55-.57 with the three measures of depression. This study therefore demonstrates that while burnout is a valid construct it had substantial overlap with the measure of depression (ie discriminant validity with depression was weak). Meier states that, for the most part, burnout met the multitrait-multimethod criteria in that correlations were higher between different measures of the same construct than similar measures of different construct, and that burnout met the same number of criteria as orderliness and depression, which have gained acceptance as constructs.

Although this was certainly a commendable attempt at validation of the MBI, Meier unfortunately used a composite score for the MBI rather than the three separate subscale scores, which weakens his findings. Another study, with a simpler methodology, but where the three separate dimensions of burnout were used, found much lower correlations between all three subscales and depression (Glass, McKnight, & Valdimarsdottir, 1993). In this study only about 20% of the variance in depression is shared with emotional exhaustion and about half this amount with the other two dimensions.

Several authors have investigated the discriminant validity of the MBI against the more established construct of depression, through factor analysing data collected from questionnaires designed to measure burnout and depression, and examining whether these load on to one or more factors. The loading of data from burnout and depression scales on to a single factor would indicate that they arose from the same underlying syndrome, whereas loading on to two factors would indicate the existence of separate syndromes. Schaufeli and van Dierendonck (1993) collected data from 667 Dutch nurses using the MBI, the Burnout Measure (Pines *et al.*, 1981)) and a Dutch measure of psychological strain (anxiety, depression and irritation) and somatic complaints (upset stomach, heart beating faster, trouble sleeping). The best fit for the data was provided by a model in which burnout, as measured by the Burnout Measure (just exhaustion), together with psychological strain and somatic complaints, loaded on to one factor, and depersonalisation and personal accomplishment from the MBI loaded on to a second factor. Emotional exhaustion loaded on to both factors. Burnout as defined by the MBI

could therefore be discriminated successfully from other more general symptoms like psychological strain and somatic complaints, although emotional exhaustion *was* related to these more general symptoms. It is interesting that burnout, when represented simply as exhaustion as is the case with the Burnout Measure, loaded on to the general distress factor rather than the burnout factor.

This finding was replicated by Schaufeli using data collected from Dutch teachers, this time using just the MBI to measure burnout and the same Dutch work stress questionnaire measuring psychological strain and somatic complaints (Schaufeli *et al.*, 1994). Again the data clearly produced two separate factors, with emotional exhaustion, depersonalisation and personal accomplishment loading strongly on to the first factor and the psychological strain and somatic complaints loading on to a second. Emotional exhaustion also loaded again on to this second factor, but less strongly than on to the first factor.

Leiter and Durup (1994) assessed the question using the same methodology, using the Beck Depression Inventory (BDI) (Beck *et al.*, 1988) and Profile of Mood States (POMS) (McNair, Lorr, & Doppleman, 1971) to measure depression. Using confirmatory factor analysis a better fit to the data was provided by a model which specified two second-order factors, burnout and depression, underlying scores on these scales than a model specifying only one factor. Once again, using different measures of depression, these data suggest that the constructs of depression and burnout are distinct.

These studies provide evidence that the items from instruments to measure burnout and depression loaded on to two separate factors, suggesting that burnout and depression arise from two separate underlying constructs. However, emotional exhaustion loaded in each case on to both the burnout and depression factors, albeit more weakly on the depression than burnout factor on the one study which provided these data (Schaufeli *et al.*, 1994). This indicates that there is some overlap between burnout and depression in the form of the emotional exhaustion subscale, and that the specificity of burnout lies in its combination of affective (emotional exhaustion) and attitudinal (depersonalisation, personal accomplishment) components.

<u>Other instruments designed to measure burnout</u>

A few other instruments have been designed by researchers to measure burnout, but for the most part these have been subjected to only very rudimentary psychometric evaluation (Schaufeli, Enzmann, & Girault, 1993) and have not been widely used. The only instrument in addition to the MBI which has been evaluated reasonably extensively is the Burnout Measure (formerly the Occupational Tedium Scale (Pines *et al.*, 1981)). The authors of this instrument conceptualise burnout as "a state of physical, emotional and mental exhaustion caused by long-term involvement in situations that are emotionally

demanding." (Pines & Aronson, 1988; p9) and the scale consists of items to measure burnout on these three dimensions. The scale consists of 21 items representing these three forms of exhaustion which are rated on a 7-point scale according to the frequency with which they are experienced, from "never" to "always". The authors and others (Schaufeli *et al.*, 1993) describe data demonstrating that the BM has good reliability and some data demonstrating correlations with work factors in supporting its validity, though correlations are modest. Although the instrument contains items relating to three types of exhaustion, the authors designed the instrument to provide one overall burnout score and the items have been found by mostly to load on to a single factor, with a few exceptions (Schaufeli & van Dierendonck, 1993; Schaufeli *et al.*, 1993). The BM had been found to have moderate positive correlations with the emotional exhaustion and depersonalisation subscales of the MBI and a low negative correlation with personal accomplishment (Schaufeli & van Dierendonck, 1993; Schaufeli *et al.*, 1993; Corcoran, 1995).

Schaufeli (1993) advises that if the BM is used it should be supplemented with a scale which measures the attitudinal component of the syndrome. The specificity of burnout lies in its combination of negative affective state and negative attitudes towards the recipients of ones care and ones job performance (Schaufeli & van Dierendonck, 1993; Schaufeli *et al.*, 1994; Leiter & Durup, 1994) (see chapter 3). The MBI therefore appears to be a more powerful measure of burnout than the BM in that it measures not only the affective "exhaustion" aspect of burnout, which is also the least specific, but also measures the attitudinal aspect in the form of depersonalisation and low personal accomplishment.

3.2.5 Burnout and psychiatric morbidity

Several authors have raised the question of whether burnout is a distinct syndrome, separate from job dissatisfaction, stress and more general psychiatric morbidity (Mayou, 1987; Meier, 1984; Paine, 1984). Investigations carried out have focused on whether burnout and depression are separate constructs. Certainly some of the symptoms of burnout are similar to those of depression, particularly those relating to fatigue and withdrawal (Meier, 1984). There has been no discussion whatsoever of this issue with regard to anxiety, presumably because at face value the two do not appear similar.

Data have been presented earlier which indicate that when items from the MBI and various measures of depression are subject to factor analysis, the burnout and depression items load on to two separate factors, suggesting they assess two separate syndromes (Schaufeli & van Dierendonck, 1993; Schaufeli *et al.*, 1994; Leiter & Durup, 1994). Emotional exhaustion loads on to both factors, indicating that there is some common ground between it and the more general distress of depression, but the loading is usually weaker on a general depression factor than a factor representing burnout. The specificity

of burnout therefore appears to lie in its combination of negative affective state and negative attitudes towards the recipients of ones care and ones job performance.

The distinction between burnout and depression has been described as being that:

> "*Burnout is fundamentally a social construct, the definition of which is intrinsically enmeshed with a person's social and organizational context. Whereas depression has implications for social relationships, it essentially reflects personal thoughts and emotions*" (Leiter & Durup, 1994; p359).

This difference is demonstrated in the questionnaire items used to measure each construct. Items to measure burnout in the MBI are focused specifically on the job, such as "I think that this job is hardening me emotionally"; "I feel exhilarated after working closely with my recipients". By contrast items to measure depression attribute negative experiences to the individual and do not refer to any specific context. For example, the Profile of Mood States measure of depression (McNair *et al.*, 1971) asked respondents to rate how much they have experienced various feelings or states in the last week, such as "miserable" or "sad" without consideration of any social context (Leiter & Durup, 1994).

While the data suggest that burnout and depression should be assessed separately, the two are without doubt related. The two separate factors on to which depression and burnout have been found to load, as described above, have been found to be moderately correlated, and these correlations were stronger between the second-order burnout and depression factors than between the measures of each (Leiter & Durup, 1994). The exact nature of the relationship between the two, in terms of whether one causes the other, remains unclear, however. From quite early on in the history of burnout research, the distinction between depression and burnout has been suggested in terms of depression being an end point of burnout (Meier, 1984). Mental health problems are perceived in this way as occurring on a continuum of severity, with burnout being hypothesised to develop earlier on the continuum than depression and anxiety. Some data have been provided more recently to support this view, albeit rather tenuously (Leiter & Durup, 1994). Structural equation modeling of the relationships between the two factors which appear to underlie measures of burnout and depression suggests that the direction of influence is from the more context specific emotional exhaustion to the more general depression. Whether this is direct influence or whether both are the result of the same personal characteristics or environmental conditions is not yet known.

3.2.6 Burnout and stress

The literature on burnout has developed fairly independently of the literature on stress and few authors have drawn on stress theories in their research on burnout or discussed how the two concepts differ from each other, with a few exceptions. Cox, Kuk, and Leiter

(1993) state that a conceptualisation of burnout as occurring after prolonged exposure to stress at work fits in with his (and others') transactional definitions of stress. Maslach and Schaufeli (1993) describe burnout as "prolonged job stress", stating explicitly that burnout differs from stress in respect to its time frame, in that stress can be experienced quite immediately, but burnout occurs only after prolonged exposure to job stress. She draws a parallel between burnout and stress as described by Selye (Selye, 1967) in terms of a general adaptation syndrome, consisting of three phases: alarm, resistance and exhaustion. Maslach describes differences between the concepts using this framework, namely that

> "*stress refers to an adaptation process that is temporary and is accompanied by mental and physical symptoms, whereas burnout refers to a breakdown in adaptation accompanied by chronic malfunctioning*" (p10).

In addition, burnout involves the development of dysfunctional attitudes towards recipients (depersonalisation) and performance at work (personal accomplishment), while stress is not necessarily accompanied by these attitudes and behaviours (Schaufeli, 1999). While the two can be distinguished conceptually, there has been little systematic examination of whether it is indeed the case that burnout follows on from prolonged exposure to job stress and the evidence which exists is equivocal. There are data demonstrating correlations between negative aspects of the work environment and burnout, described in the section on the validity of the MBI, but the direction of causality can not be determined from these correlational data. A few of the longitudinal studies which have been carried out appear to suggest that the relationship may occur in the other direction, ie that burnout precedes job stress (Cox *et al.*, 1993). Possible alternative theoretical explanations have been suggested (Cox *et al.*, 1993) such as that burnout and stress are distinct psychological states which arise from work experiences or that the relationship between the two is far more complex and dynamic than has been investigated here. It is of concern in terms of the theoretical conceptualisation of burnout that there has been so little research on the interplay between these two concepts, particularly since theoretical overlap between the concepts occurs, in that they share the same domain of negative emotions experienced in the context of work.

3.2.7 Applicability of burnout to non human-service occupations

Historically the view has been widely held that burnout results from the emotionally demanding relationships of professionals who deal with others' physical, psychological and social problems and is therefore only a risk for those working in what is termed the "human service" domain of work. The view that burnout, as defined by the MBI, is specific to human service professionals is supported by the fact that efforts to apply the MBI to other occupations have met with limited success (Leiter & Durup, 1994). Golembiewski *et al.* (1983) tested whether the MBI had applicability in a broader commercial setting by

collected MBI data from 296 staff at all levels of a multinational company. An examination of the factor structure of scores on MBI revealed that five of the items loaded on to different factors than had been found among human services staff. This is perhaps not surprising in view of the fact that Golembiewski and colleagues made two major changes to the MBI. They changed the focus of the items from "recipients" to "co-workers" and for the purposes of simplification changed the scale stem from "How often do you feel the way described by each statement" to "To what degree is each of the statements like or unlike you?". Evans and Fischer (1993) administered the MBI to samples of computer company employees, changing "recipients" to "students" and similarly found that the depersonalisation items did not form a coherent factor on this sample.

Changing the focus of the questionnaire items from "recipients" to "co-workers" or "students" appears to change the entire emphasis of the instrument, since the relationship of workers in the human services with the recipients of their care is on an entirely different basis to that of commercial employees with their co-workers or trainees. Certainly workers in commercial organisations may feel what they would describe as "burnt out" as a result of, for example, being in an environment which is very demanding or alternatively is unstimulating and un-challenging, but this experience is not the same as burnout as it is technically defined in terms of feeling overextended by chronic exposure to people-problems and research of this type does nothing but weaken the definition of burnout.

Recently, a second form of the MBI has been developed for non-human service workers, termed the MBI-General Survey (MBI-GS) (Maslach *et al.*, 1996). This comprises three subscales which are similar to the standard version of the MBI, but without the direct emphasis of feelings about work being based on the people for whom the professional provides care. The exhaustion subscale comprises items referring to fatigue in the performance of work, rather than as a result of emotionally demanding interactions with recipients. The cynicism subscale, which parallels the depersonalisation subscale of the original, comprises items capturing a distant attitude towards work. The personal efficacy factor includes items covering both social and non-social accomplishments at work. Some preliminary data on the psychometric properties of this new instrument are provided by the originators of the instrument (Maslach *et al.*, 1996), but it is as yet at an early stage of assessment. A number of questions are raised by this definition of burnout as a syndrome which is experienced differently among different types of occupational groups. Is it a single syndrome, or two separate ones? Is it caused by different factors? It appears the non-human service worker syndrome does not arise from emotional overload, but might lack of reciprocity at the organisational level still be a factor? These questions have not yet been addressed, and currently this particular form of burnout and the implications of its development for the human-service worker form of burnout remain unevaluated.

3.2.8 Personal vulnerability factors

Early descriptions suggested that individuals particularly vulnerable to burnout were "the dedicated and committed...who work too much, too long, and with too great a degree of intensity" (p161) along with the person "who has a need to give...that is excessive and in time unrealistic" (Freudenberger, 1974; p162). The idea that individuals with particular personality traits or motivations may be particularly vulnerable has not been investigated, however, in the burnout literature.

Some personal factors in the form of demographic characteristics have consistently been found in the literature to confer increased risk of burnout. Women tend to report higher emotional exhaustion than men, who report higher depersonalisation and personal accomplishment (Maslach & Jackson, 1981). Professionals who are young in age appear more at risk of burnout on all three dimensions and those who are single or divorced, rather than married or cohabiting, appear to have higher rates of emotional exhaustion and depersonalisation (Maslach & Jackson, 1981). The focus of research on factors associated with burnout has very much been on occupational rather than personal factors, and there has been surprisingly little investigation of the latter.

3.3 Summary

The prevalence of psychiatric morbidity in the population, with the misery this carries and the high cost in occupational terms, has driven the need for research to better understand its causes. In the last 25 years research in this area has been facilitated by the development of instruments to assess particular forms of neurotic disorder, specifically anxiety and depression, in a systematic and robust way. Further, instruments have been developed which go beyond the narrow focus of a specific type of neurotic disorder, to assess the prevalence of symptoms of neurotic disorders as a class, here termed psychiatric morbidity. These instruments provide the technology to assess the prevalence of psychiatric morbidity across different occupational groups, and to examine whether any aspects of particular occupational roles, or of work generally, are associated with it. A number of these instruments, and in particular the GHQ, have been shown to demonstrate good validity against a clinical psychiatric interview. When used with a cut-off score, the GHQ can be used to provide an estimate of the prevalence of clinically significant psychiatric morbidity in a sample, ie a level of morbidity for which professional intervention is warranted.

In addition to pervasive psychiatric morbidity, research into occupational causes of poor mental health has focused on burnout, a form of psychological disturbance which is specifically work-related both in aetiology and in the domain in which it is experienced. Historically burnout has been a conceptual rag-bag term for any kind of negative attitude or symptom at work, from headaches to gallows humour. However, the recent

development of the MBI has provided both a tighter definition of burnout, along with the means to measure it systematically. Burnout is thus defined as a syndrome of three related components: feeling emotionally overextended by work, ceasing to care very much about the recipients of your care, and feeling low levels of competence and achievement at work.

Uncertainty remains, in spite of the general psychometric robustness of the MBI, about what burnout actually is. In contrast to measures of psychiatric morbidity, which can be validated against a clinical psychiatric interview, there is no pre-existing clinical construct against which to validate the MBI. In spite of the greater degree of uncertainty about what is being measured, there is added value in examining burnout as well as psychiatric morbidity in a study of the mental health of a particular occupational group. It has been demonstrated that burnout and depression are separate constructs, although the emotional exhaustion component does overlap with depression to a certain extent. Where burnout adds information over psychiatric morbidity is in its attitudinal or cognitive components of depersonalisation and low personal accomplishment. To fail to measure these components is to miss an opportunity to assess specific aspects of psychological dysfunction which have been identified as being experienced in and arising from the workplace.

It is currently unclear how burnout relates to psychiatric morbidity. It could be hypothesised that an individual would be likely to develop the more context-specific burnout before the more pervasive psychiatric morbidity. There is preliminary evidence this occurs, but further investigation is needed. What is also not known is how far burnout lies along the continuum of severity of poor mental health, or if individuals who develop burnout are at greater risk than those without burnout of developing psychiatric morbidity. If burnout occurs before psychiatric morbidity, identification of factors at work which increase vulnerability to burnout may provide opportunity for intervention earlier in process of development of poor mental health, before psychiatric morbidity has developed. Also, since burnout is more specifically work-related than psychiatric morbidity, it could be hypothesised to be likely to have stronger relationships with work-related factors than psychiatric morbidity.

The precise dynamics of the burnout process are not well understood, but in the last decade research on burnout has shifted from the blind empiricism with which it was previously characterised towards more theory driven research which has attempted to place the development of burnout in a broader theoretical framework. In particular, there is some evidence to suggest that burnout results from chronic stress arising from emotional overload and a lack of reciprocity in relationships at work, both of which characterise the occupational role of doctors. In addition to examining stress at work as

a causal factor, it is important to examine other factors, such as job satisfaction, which have been identified as having stronger relationships than job stress with the attitudinal components of burnout in the form of depersonalisation and personal accomplishment.

CHAPTER 4: The prevalence of psychiatric morbidity and burnout among doctors

This chapter will discuss what is currently known about the extent of psychiatric morbidity and burnout among UK doctors generally and consultants specifically. There will also be an investigation of whether any personal factors among doctors have been found to confer an increased risk of poor mental health.

4.1 The prevalence of psychiatric morbidity among doctors

4.1.1 Suicide

Between 1979 and 1990 124 doctors in the UK committed suicide, which represents proportionately about twice the rate reported among the population generally (Charlton *et al.*, 1993; OPCS, 1995). Proportional Mortality Ratios[1] (PMR), calculated by the Office of Population and Census Surveys, enable comparison of death rates from particular causes among particular occupational groups with that of the general population (OPCS, 1995). The death rate from each cause in the general population is 100 (observed deaths divided by expected deaths, which will always be the same, times 100). The OPCS report a PMR for suicide among doctors of 198, which is significantly higher than that in the general population (confidence interval 165-236, $p<.05$) (OPCS, 1995). A review of patterns of suicide in England and Wales concurs that the rate of suicide among doctors is twice that of the general population (Charlton *et al.*, 1993).

In a more detailed study of suicide among doctors, Carpenter traced 98% of a cohort of over 20,000 doctors registered as NHS consultants between 1962 and 1992 and compared mortality rates in this group with those in the general population (Carpenter, Swerdlow, & Fear, 1997). An elevated suicide rate was found among female but not male consultants. However, male consultants did have twice the death rate of the general population from accidental poisoning, half of the cases of which involved prescription drugs. The author suggests it is implausible that consultants would be more likely than the general population take an accidental overdose of prescription drugs and that these deaths may reflect an unwillingness by doctors to certify a colleague's death as suicide, though is appears strange that this was not also the case for female doctors. The epidemiological data described above consistently indicate a raised suicide rate among doctors in the UK, a situation which has also been found more widely in North America and Europe according to a recent systematic review (Lindeman, Laara, Hakko, & Lonnqvist, 1996). This review also reports doctors having a higher rate of suicide than other professional groups.

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[1] To calculate a PMR, the proportion of deaths from a particular cause in the general population is applied to a particular occupational group to calculate the expected number of deaths in that group from that cause. The ratio of the actual number of deaths found in the group to the expected number is multiplied by 100 to give the PMR. If the number of deaths is greater than is found in the general population the PMR will be greater than 100 [OPCS, 1995].

Doctors' knowledge of how to carry out a successful suicide and their access to drugs have been proposed as an explanation, at least in part, for their relatively higher rate of suicide (Carpenter *et al.*, 1997). Evidence for this is provided by elevated rates of suicide being found also among other professions with similar knowledge or access, such as veterinarians and pharmacists (Charlton, 1995). Particular difficulties in carrying out the work of different jobs, or particular vulnerabilities of individuals going into different jobs have also been suggested as explanations for different suicide rates in different occupational roles. Certainly in the case of doctors, the nature of their work, which is characterised by long hours and a heavy workload, is hypothesised as being a causal factor (British Medical Association Board of Science and Education, 1993). The causes of doctors' high rates of suicide remain at this time speculative, but the consistency with which elevated rates are found brings an urgency to the need for a systematic identification of causes.

4.1.2 Doctors diagnosed with mental illness

Studies of doctors receiving treatment for mental illness provide some information about mental ill-health among doctors. Data from doctors receiving treatment in a variety of institutions in the UK, USA and New Zealand indicate that the most commonly diagnosed disorders among doctors are alcoholism, drug addiction and affective disorders, with organic brain syndrome, personality disorders and schizophrenia rarely diagnosed (Rucinski & Cybulska, 1985). A study of all doctors admitted and discharged from Scottish psychiatric hospitals between 1963 and 1972 found significantly higher rates among doctors of drug dependence, alcoholism and affective illnesses among doctors than non-doctors, while there was no difference in the rates of schizophrenia, pre-senile and senile dementia and neurosis (Murray, 1977). It appears from these analyses that doctors being diagnosed with forms of mental illness at the lower end of the hierarchy of severity of mental illness, which involve a less severe break from normal functioning and in the aetiology of which adverse life events have been shown to have a role (Brown & Harris, 1989). From an examination of several studies of doctors who had committed suicide Rucinski and Cybulska (1985) report that three quarters of doctors who commit suicide are depressed.

Doctors have a reputation for being heavy drinkers - everyone knows the old adage about an alcoholic being someone who drinks more than their doctor - yet it is difficult to obtain a clear picture of the extent to which alcohol addiction and abuse is a problem within the profession. A British Medical Association report reviewed the evidence from a number of studies and concluded that there was little evidence that doctors drink more than others in Social Class I, though consumption of alcohol tended to be relatively high among all professional groups (British Medical Association Board of Science and Education, 1993). Around 20% of a sample of medical students at three British universities described their

alcohol consumption as heavy (Firth, 1986), but alcohol consumption among students in general is acknowledged to be high. High levels of consumption appear to continue through junior doctor grades, however, with a recent survey finding that over 60% of a sample of junior house officers' reported consumption exceeded the government's recommended safe levels (Birch, Ashton, & Kamali, 1998), and the levels among this group were higher than among the same group as medical students (Webb, Ashton, Kelly, & Kamali, 1996). In sum, there are some indications that doctors' alcohol consumption may be high relative to the general population and government recommendations, but it may not be higher than that commonly found among other professional groups.

Death rates from cirrhosis of the liver, at best an indirect measure of alcoholism, have been reported to be slightly elevated among male doctors in the UK in comparison with the general population, but not significantly so (British Medical Association Board of Science and Education, 1993). A more recent survey found the rate to be the same as that in the general population, but this was in contrast to doctors' significantly lower death rates from most other causes (Carpenter *et al.*, 1997). Although they may not drink more, twice as many doctors as other social class I males were admitted for therapeutic help with alcohol addiction to Scottish institutions during the mid 1960s to 1970s (Murray, 1977). Murray suggests this could simply reflect doctors' easier access to professional help. In fact, however, this explanation appears unlikely. The reluctance of doctors to seek help for mental and also physical illness is well documented, and doctors will often self-medicate or obtain help informally from colleagues through fear that the stigma of a psychiatric diagnosis will jeopardise their career (Hodgkiss & Ramirez, 2000). In this context, the higher rate of treatment for alcohol addiction is likely to be a reflection of a genuinely higher rate of addiction among doctors.

Examination of the extent of drug addiction among doctors is difficult and data are scarce. The rate of doctors admitted to Scottish hospitals for treatment for drug dependence was five times that of other social class I males during the mid 1960s to 1970s (Murray, 1977). Among another sample of 83 doctors treated for drug abuse between 1969 and 1988, their main source of drugs was self-prescribing, which indicates that doctors' access to drugs may be a causal factor in the relatively high rate identified here (Brooke, Edwards, & Taylor, 1991). A 30-year follow-up study of 47 US doctors and 79 socioeconomically matched controls found higher rates of heavy drug and alcohol use among the doctors than the controls, particularly among doctors involved in direct patient care (Vaillant, Sobowale, & McArthur, 1972). A recent survey of consultants and principals in general practice found 71% of GPs and 76% of consultants usually or sometimes self-prescribed (Forsythe, Calnan, & Wall, 1999). Ten per cent of GPs and 15% of consultants admitted usually or sometimes prescribing opiates, anxiolytics, antidepressants, or hypnotics. Among GPs in the Dublin area the rate of general self-prescribing was 99% (Clarke,

O'Sullivan, & Maguire, 1998). Over a quarter of junior house officers in the UK use cannabis, with 11% taking it regularly (weekly or monthly) according to a recent survey, while 13% of men and 10% of women reported current use of LSD, ecstasy, cocaine, amphetamines, hallucinogenic mushrooms, or amyl nitrate, (Birch *et al.*, 1998). There certainly appears to be an indication that doctors' drug use may be problematic, but there are no comparative data to indicate whether it is higher than is the case in other professions.

One study has looked at the aetiology of substance misuse among a sample of doctors receiving treatment. Among 144 doctors, the major pathways into substance abuse were long-standing relationship or work difficulties, described by 53% of the doctors, and anxiety or depression, to which 32% attributed their abuse (Brooke, Edwards, & Andrews, 1993). Depression was reported as being associated significantly with perceived stress at work and at home, but the magnitude of these associations was not provided by the authors. Among doctors receiving treatment for substance abuse, consultants predominantly abused alcohol, while doctors below the grade of consultant were as likely to abuse drugs as alcohol (Brooke *et al.*, 1993). This may reflect an age difference, with older doctors being less likely to abuse drugs, or a time difference, with drug-usage being more acceptable to a younger generation of doctors.

A factor which is clearly worrying with regard to doctors' alcohol and drug abuse is that among doctors treated at a London teaching hospital for addiction, the mean time period for which they described their substance abuse as having been problematic was 6.7 years for alcohol abusers and 6.4 years for drug abusers (Brooke *et al.*, 1991). Again, the reluctance of doctors to seek help is demonstrated here. On top of their fears regarding the harm to their career a psychiatric diagnosis is likely to cause, other possible explanations for this reluctance are a lack of confidence in the available services to help them and unwillingness of colleagues to inform on a doctor who they suspect is in trouble. The proportion of GPs registered as a patient with a GP of their own is very low compared with the general population and GPs have been reported to consult their own GP at a rate of only one-tenth that of non GPs (Chambers & Belcher, 1992). A more recent study found a much higher proportion of GPs and consultants were registered (96%), though again the rate of consultations was low (Forsythe *et al.*, 1999). Whatever the cause, doctors' delay in seeking help, indicates that they are continuing to function for long periods of time while their levels of consumption of drugs or alcohol is perceived by them as causing impairment, and the implications of this for patient care are serious.

4.1.3 Population based research on psychiatric morbidity among doctors

Because not all doctors will seek professional help for mental ill-health, studies of doctors receiving treatment do not provide accurate information about numbers of doctors in the

population with mental ill-health severe enough to require treatment. In order to assess the prevalence of mental ill-health among the wider population of doctors large studies of populations of doctors must be carried out, and for this purpose standardised questionnaires which can accurately identify clinically significant psychiatric morbidity are invaluable.

There has been a great deal of research on "stress" in medical practitioners, but the great majority of studies have not used standardised questionnaires and therefore provide little in the way of meaningful data. In recent years, with increasing discussion of the pressures of a medical career, some studies *have* been carried out using validated and reliable instruments to investigate the proportion of doctors in practice suffering mental ill health and only these more robust studies will be included here.

A recent review of studies of mental ill-health among doctors in the UK reports that "high levels of psychological disturbance" have been found among 21% to 50% of UK doctors (Williams, Michie, & Pattani, 1998). These levels were found among doctors at all levels of seniority and were described as being higher than for comparable professional groups. Looking at these in more detail, studies estimating the proportion of practising doctors who suffer symptoms of poor mental health have until recently focused on junior doctor and GPs. These two groups have been perceived as particularly at risk of poor mental health, junior doctors because of their extremely long working hours and GPs because of recent contractual changes to their role.

4.1.3.1 Psychiatric morbidity in junior doctors

A series of studies carried out by Firth-Cozens has assessed psychiatric morbidity among a group of medical students as they progressed to become junior doctors. Using the 12-item GHQ, with a cut-off score of 4 or more indicating psychiatric morbidity, 29% of a sample of fourth year medical students were estimated as having clinically significant psychiatric morbidity This appeared to remain fairly stable, being 30%when the same group were surveyed as junior house officers (Firth, 1986) . Twenty-eight percent of the group at the latter stage reported depression according to the Symptom Check List. The medical students' scores on the GHQ (mean score 11.7) are described by the author as being high compared with those reported among a sample of employed young people (mean score 8.3-9.0) (Firth, 1986). The scores of the junior house officers were described as high compared to civil servants and other professional groups . A further study of women junior house officers found a mean score on the GHQ-12 of 13.8, which although described by the author as high, she demonstrates is not higher than other health workers, such as a sample of health visitors (mean score 13.3) (Firth-Cozens, 1990). Of more concern is her finding that 46% of women junior house officers were estimated to be suffering from depression according to the Symptom Check List, which is high

compared, for example, to the 15% prevalence found using this instrument among a sample of women in London (Firth-Cozens, 1990).

Studies using other instruments to measure mental ill-health have also provided data to suggest that junior doctors suffer to a greater degree than those in other professions. Fourteen percent of a sample of 182 pre-registration house officers working for the West Midlands Health Authority were described as having clinically significant mental health problems as measured by the Occupational Stress Inventory (OSI) (Grainger, Harries, Temple, & Griffiths, 1995). Their scores on the mental ill-health scale were significantly higher scores than the OSI norm data, which comprised a large group of non-health care white collar workers. Their scores remained very similar when the group were surveyed one year later as senior house officers (Grainger, Harries, Temple, Griffiths, 1996).

Overall these studies using the GHQ appear to show that between a quarter and a third of medical students and junior doctors in the UK experience clinically significant levels of psychiatric morbidity at any one time and this prevalence is higher than that among some other occupational groups. Women junior doctors in particular appear to be at high risk of depression.

4.1.3.2 Psychiatric morbidity in GPs

In comparison with a British normative sample, male GPs are reported to have higher levels of free-floating anxiety , equivalent levels of depression and lower levels of somatic anxiety, measured by the Crown Crisp experiential index (Crown & Crisp, 1979; Cooper *et al.*, 1989). Women GPs had lower levels of poor mental health on all three indices compared with a normative sample of women. These data have only limited representativeness however, since the response rate was under 50%.

Another national sample of GPs, again with a fairly low response rate (61%), were studied by the same authors several years later, after the introduction of new GP contracts which, amongst other changes, required GP practices to be run to a greater degree as a business (Sutherland & Cooper, 1992). Significantly higher levels of depression and somatic anxiety were found among both male and female GPs at the later survey point, which the authors conclude may have resulted from changes to the way GPs had to work following the new contract. Certainly GPs reported greater stress at this later time point from various aspects of their work, including from night calls, emergencies during surgery hours and interruptions to family life, but the study did not demonstrate that these arose from the new GP contract.

Using the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) Chambers found that 19% of GPs in Staffordshire scored as cases of anxiety (an

additional 22% had borderline anxiety) and 10% were cases of depression (16% had borderline depression) (Chambers & Campbell, 1996). Caplan found higher rates of anxiety than this among GPs in north Lincolnshire (30% cases, 25% borderline), though the prevalence of depression amongst his sample was almost exactly the same as was found in Staffordshire (11% case and 16% borderline) (Caplan, 1994). Caplan found no difference in the prevalence of anxiety among GPs, consultants and NHS managers, though the rates of depression among GPs and consultants were significantly higher than among the managers.

These studies indicate that around one in ten GPs suffer clinically significant levels of depression, while between a fifth and a third report anxiety. In addition, large numbers of GPs are reporting levels of symptoms which are bordering on clinically significant. The picture is more uncertain regarding how this compares to other professionals, with no clear pattern emerging.

4.1.3.3 Psychiatric morbidity in consultants

The lack of any research on the mental health of consultants until the last few years appears to reflect a perception that hospital consultants, whose seniority indicates they have made it to the top in a challenging profession and who are presumably a survivor population, were unlikely to experience poor mental health. In the last few years, however, the high degree of clinical autonomy consultants previously had over their work is perceived as having been eroded, as health care has become to a far greater extent subject to the control of hospital managers and to financial pressures. This appears to have resulted in a change in the way consultants are perceived, in that in the last few years the mental health of consultants in this country has for the first time been the subject of study.

A study by Blenkin, Deary, Sadler, and Agius (1995) of 374 Scottish consultants from all the major specialties found an overall prevalence of psychiatric morbidity of 21%. Psychiatric morbidity was assessed using the GHQ-28 with a cut-off of 5/6 and there was a good response rate of 75%. The prevalence across the different specialties ranged from 15% among surgeons to 34% among anaesthetists. These differences were not significant, though numbers of consultants in each specialty were small once the sample was broken down into specialty groups. Caplan (1994) set out to measure psychiatric morbidity in all consultants in North Lincolnshire Health Authority, also using the GHQ-28 with the same cut-off of 5/6 (Caplan, 1994). Among the 65 consultants who replied, a response rate of 80%, the prevalence of psychiatric morbidity was 47%, which was similar to that found among GPs and senior and middle managers in the same health authority. Among another group of consultants, this time from a single hospital, 25% were estimated to have psychiatric morbidity, this time using the 12-item GHQ, though the response rate

for this sample was low at 47% (Tattersall *et al.*, 1999). The differences in the prevalence of psychiatric morbidity found by the three studies, two of which used the same instrument with the same cut-off, may reflect genuine differences in the prevalence of psychiatric morbidity among consultants in the different geographic areas. Alternatively, the self-selection of a proportion of Caplan's sample by attendance at a presentation by him on stress in the workplace may partly account for the higher prevalence of psychiatric morbidity found among his sample. Caplan found lower prevalences of anxiety (23% full case, 45% borderline) and depression (5% full case, 19% borderline) using the HADS, which probably reflects differences in the definitions of depression and anxiety between the instruments. Both of these studies found 5% of consultants reported experiencing suicidal thoughts (Caplan, 1994; Blenkin *et al.*, 1995).

A national study of mental health in a large sample of employees in NHS Trusts provides further data on the mental health of consultants (Borrill *et al.*, 1996). Psychiatric morbidity was assessed using the GHQ-12, which was validated for use in staff in NHS Trusts in this study through interviewing a sample of 615 staff across 6 Trusts using the Clinical Interview Schedule-Revised (CIS-R; Lewis *et al*, 1992). A cut-off score of 3/4 on the GHQ-12 was found to provide the best sensitivity and specificity for predicting psychiatric morbidity identified by the CIS-R among NHS Trust staff in this sample. The prevalence among a sample of 681 consultants was 35%, compared with 32% among junior doctors. The response rate at 50.5% was low, even with a second mailing of non-responders after four weeks, but perhaps not unexpectedly so in view of the scale of the study, with questionnaires being distributed to 23,047 staff at all levels across 19 NHS Trusts. The response rate for consultant doctors was not given, but with only half of respondents overall returning their questionnaires it must be accepted that these data may not be representative of all consultants.

Taken together, these data indicate that the prevalence of psychiatric morbidity among consultants is at least as high, if not higher, than that found among junior doctors. A direct comparison of the prevalence among consultants and junior house officers, traditionally perceived as those with the highest levels of job stress, has revealed a higher prevalence among consultants (25% vs 19%; GHQ-12) (Kapur *et al.*, 1998). Overall, the prevalence of psychiatric morbidity among hospital consultants certainly appears to be higher than the 18% reported among a sample of 5000 employed people according to data from the Household Panel Survey (1994), again using the GHQ-12 with a cut-off score of 3/4.

Individually, these studies do not particularly concur as to what is the prevalence of psychiatric morbidity among hospital consultants in this country. The studies by Blenkin in Scotland and Caplan in North Lincolnshire had good response rates, but the prevalences of psychiatric morbidity found were very different. Perhaps it is the case that

levels of psychiatric morbidity are particularly low in Scotland, relative to the rest of the UK, and high in North Lincolnshire, but the studies have limited generality because of being geographically specific, and Caplan's study was also rather small. The study by Borril covered the UK far more broadly, but the representativeness of these findings is limited by the low response rate. What is still needed to assess the prevalence of psychiatric morbidity among consultants in this country accurately is a national survey which covers all geographic areas of the UK and whose high response rate results in the data being representative of the experience of all consultants.

4.1.3.4 Comparison with other health professionals

As well as doctors, nurses have been the subject of fairly extensive research on this issue and a recent review reports that between 29% and 48% of nurses have been found to suffer psychiatric morbidity, a similar range of prevalence as is found among doctors (Williams *et al.*, 1998). A national survey of NHS staff (Borrill *et al.*, 1996) found a very similar prevalence of psychiatric morbidity among doctors and nurses (28% vs 29%). Between a third and a half of NHS managers, perhaps a more comparable group with consultants in terms of seniority, have been found to have psychiatric morbidity, and the NHS survey found reports this prevalence as higher than among a sample of non-NHS managers (33% vs 17%) (Wall *et al.*, 1997; Caplan, 1994). A series of studies of clinical psychologists, also using the GHQ, found prevalences at different levels of seniority ranging from 29% to 40% (Cushaway & Tyler, 1996). Other professional groups in the NHS have been far less well researched, but looking to the NHS survey once again, rather lower prevalences were found among ancillary staff (such as porters and catering staff), administrative staff and professional and technical staff (for example biochemists and lab staff) (20-24%) (Wall *et al.*, 1997). In the survey if NHS staff, doctors had a higher prevalence of psychiatric morbidity than those in other professional occupations (28% vs 18%), and the prevalence of psychiatric morbidity in the NHS Trust staff as a group was higher than that found among a large sample of the employed population generally (27% vs 18%) (British Household Panel Survey, 1994).

4.2 The prevalence of burnout among doctors

There has not yet been any systematic assessment of the prevalence of burnout among hospital consultants in this country. One study of all GPs in Northamptonshire found significantly higher mean scores on all three dimensions of burnout, measured by the Maslach burnout Inventory (MBI) in comparison with a North American norm group (Kirwan & Armstrong, 1995). Whether the magnitude of the difference is important in terms of the degree of suffering of the individual doctors is not clear, however. Part-time GPs had significantly lower emotional exhaustion and depersonalisation than those working full-time, but there was no investigation of the characteristics of part-time GPs which might have explained this difference.

Catalan measured burnout using the MBI in a mixed sample of doctors and nurses working in AIDS and oncology and found that 23% of the sample had scores categorised as "high" on all three of the burnout subscales (Catalan *et al.*, 1996). "High" scores are determined by predetermined cut-off scores based on norm data (Maslach & Jackson, 1986). Doctors reported a greater frequency of high depersonalisation than nurses, while staff working with AIDS patients reported lower personal accomplishment than their colleagues in oncology. Another study involving both doctors and nurses, this time working in bone marrow transplant units, found high emotional exhaustion, high depersonalisation and low personal accomplishment in 33%, 13% and 33% of doctors respectively. In this study the frequency of both emotional exhaustion and depersonalisation was higher in doctors than nurses (Molassiotis & van der Akker, 1995). Forty percent of a sample of psychiatrists has been found to have high emotional exhaustion, 31% high depersonalisation and 40% low personal accomplishment, again measured using the MBI (Guthrie *et al.*, 1999).

It is difficult to gain a clear picture of what these studies are saying about the prevalence of burnout among doctors in this country. The cut-off scores indicating "high" emotional exhaustion and depersonalisation and "low" personal accomplishment were the scores which separated the upper, middle and lower thirds of the distribution of scores of a norm sample of US health professionals (Maslach & Jackson, 1986). As such they have not been validated against any external objective measure of burnout and really can be taken to indicate only that a consultant who is classified as having a high score reports more symptoms of emotional exhaustion, for example, than a consultant whose score is classified as moderate. In addition, the data are reported in different ways, with some authors reporting the proportion of doctors with scores classified as high on emotional exhaustion and depersonalisation and low on personal accomplishment, while others provide mean scores. The data appear to indicate that doctors working in bone marrow transplant units have a lower frequency of burnout than psychiatrists, but in all these studies the sample size was small which limits the confidence with which conclusions can be drawn from the data. Overall, other than one study of GPs (Kirwan & Armstrong, 1995) the study of burnout among doctors in this county has to date been rather piecemeal, involving limited specialty groupings. A more general assessment of the prevalence of burnout among hospital consultants in this country has yet to be carried out.

4.3 Implications of poor mental health among doctors for patient care

It could be hypothesised that the performance of doctors suffering symptoms of depression, for example, is likely to be impaired, relative to their performance when feeling mentally healthy. For example, open and supportive communication with and about patients is likely to be difficult for doctors suffering mental ill-health themselves. Organisational research into well-being and performance has focused on examining the

"happy-productive" worker hypothesis. Two meta-analyses of the job satisfaction-performance relationship report the average correlation between measures of overall job satisfaction (rather than satisfaction with specific aspects or facets of the job) and performance as .17 (Iffaldano & Muchinsky, 1985) and .31 (Petty, McGee, & Cavender, 1984), which suggest that the relationship is moderately weak. Few studies have examined a lack of well-being, or poor mental health, and performance.

In doctors specifically, investigation of the relationship between mental health and performance has been hampered by the fact that assessment of the performance of senior doctors has always been rather taboo. Unlike some other professional groups, particularly in the business world, there has not been any regular formal assessment of senior hospital doctors, though the performance of juniors is assessed. Following some recent instances of obviously sub-standard patient care, such as that which occurred at Bristol (Smith, 1998), proposals have been drawn up by the Department of Health to introduce annual appraisals and external clinical audit . Although not in place yet, these may enable examination in greater detail of the relationships between poor mental health and performance.

In spite of the limitations placed on research, some data have been presented recently which are starting to indicate that there may be links between poor mental health among doctors and lowered standards of patient care. However, no research has been carried out yet using objective assessments of doctors' performance. Initial work on this subject, focusing on the effects of sleep deprivation on work performance among junior doctors, has shown that performance of some but not all types of tasks is impaired among doctors who have been sleep deprived (Spurgeon & Harrington, 1989). In these studies performance was often assessed by various cognitive tests and the impact of sleep loss on actual performance in the field remains largely uninvestigated. An exception is a study by Goldman, who found poorer surgical performance, characterised by greater indecision and less efficiency, among medical students with less than two hours sleep the previous night (Goldman, McDonough, & Rosemond, 1972).

More recent research has examined relationships between poor mental health and work attitudes and performance. Senior house officers with relatively high psychiatric morbidity were found to report less confidence in performing a range of the clinical tasks than colleagues without psychiatric morbidity (Williams, Dale, Gluckman, & Wellesley, 1997), though there was no investigation of whether this influenced their actual competence. In another study, again based solely on self-report measures, Houston and Allt (1997) found that doctors who showed an increase in anxiety (GHQ-28) when taking on the role of junior house officer also reported making more errors in their everyday life, and that everyday error-making was related to making mistakes at work.

Firth-Cozens and Greenhalgh went beyond assessment of errors to look at relationships between stress and more general interaction with patients (Firth-Cozens & Greenhalgh, 1997). They found that just over a third (N = 82) of a sample of hospital doctors and GPs reported that there had been a recent incident in which stress-related symptoms had impaired their patient care. Half of these concerned a general reduction in standards of care and 40% involved the expression of anger or irritability towards patients. Six doctors described making serious mistakes and two described recent situations in which a lack of care caused a patient to die. The great majority of incidents (85%) was attributed by the doctors to tiredness or feeling under pressure because of overwork. Eight incidents were seen by the doctors as the result of depression or anxiety, five resulted from the effects of alcohol and one from boredom.

A small scale study of doctors by Christensen, Levinson, and Dunn (1992) demonstrated that the awareness of having made a serious clinical error can have a devastating emotional impact. Mistakes are frequent in medical practice (Berwick & Leape, 1999), but are not tolerated by the medical culture in which the usual response is to blame the individual doctor (Wu, 2000). It is likely, however, that a combination of other factors, such as a heavy workload, inadequate supervision or experience, and poor communication, provide the conditions in which a mistake can be made (Vincent, Taylor-Adams, & Stanhope, 1998). Placing the blame for a mistake solely on the individual is likely to compound the doctors' distress while failing to reduce the likelihood of a mistake being made by another doctor under the same conditions. The study by Firth-Cozens and Greenhalgh indicated that as many as a third of doctors perceive there are times when the way they treat patients is sub-standard, in a few cases to a very serious degree, and that they perceive this as the result of their experiencing stress at work. This study suggests that the care doctors give patients may be impaired if they themselves are suffering psychological impairment, though the self-report nature of the data render the association as yet tenuous. Further research is required using more detailed, objective measures of doctors' mental health, work conditions and clinical performance to confirm this association.

4.4 Individual differences in poor mental health among doctors

According to the widely accepted interactional model, job stress is thought to precipitate burnout and psychiatric morbidity in individuals who are vulnerable. Some work has been carried out to try to identify which characteristics of the individual confer vulnerability to experiencing stress and poor mental health. These characteristics can include demographic characteristics such as age and gender, social characteristics, such as marital status, job characteristics such as working part-time vs full-time, and dispositional factors, such as Type A behaviour pattern or locus of control. Vulnerability factors identified specifically for doctors will be examined here.

4.4.1 Sociodemographic and job characteristics

Age

In their study of Scottish consultants, Agius *et al.* (1996) found that being relatively young in age and having spent fewer years in post as a consultant were both risk factors for burnout. In a study of consultant surgeons, those who were younger reported higher hysterical anxiety than their older colleagues, according to the Crown Crisp Experiential Index, but, lower somatic anxiety and depression (Green, Duthie, Young, & Peters, 1990). Both of these studies indicate it is younger doctors in senior posts who appear vulnerable. A study of psychiatrists found a far greater proportion of junior than consultant psychiatrists was classified has having high emotional exhaustion and depersonalisation (Guthrie *et al.*, 1999) and two studies of GPs found younger age associated with depersonalisation (Kirwan & Armstrong, 1995; Winefield & Anstey, 1991) and emotional exhaustion (Winefield & Anstey, 1991). Although there is an indication of increased vulnerability among junior doctors or younger doctors in senior posts, not all studies have found effects in this direction. Among a large sample of GPs, those who were in this case older were at greatest risk of poor mental health, measured using the Crown-Crisp Index (Cooper *et al.*, 1989). Borril *et al* (1996) found a curvilinear relationship between age and mental health among a large sample of NHS Trust staff, with those in the 26-45 age range having higher rates of psychiatric morbidity than their younger and older colleagues.

An increased vulnerability with young age, as found particularly among younger doctors in senior posts, is counter-intuitive to the notion that burnout and psychiatric morbidity develop cumulatively over years of dealing with exposure to stress at work. One possible explanation for younger doctors at a senior level experiencing higher rates of mental ill-health is that in the first few years while they are still learning the role of doctor, they experience their work as more stressful than more long-serving colleagues and that this influences their mental health. Certainly there are few structural mechanisms within medicine, particularly when doctors first become consultants, such as mentoring by those who are more experienced, to assist their transition into a senior post. The curvilinear relationship found by Borrill among NHS Trust staff generally rather goes against the idea that the youngest consultants are the most vulnerable, in that it found those in the middle part of their career are at greater risk of poor mental health than those just starting off or those approaching retirement. This relationship was found for NHS staff generally though; whether it was found for doctors specifically in this sample is not reported. Further clarification of the relationship of age with mental health among senior hospital doctors is required.

Gender

According to a review of sex differences in minor psychiatric morbidity, women are diagnosed with an episode of mental illness by GPs more frequently than men, take more

certified sick leave than men and have a greater number of psychiatric admissions to hospital than men (Jenkins, 1985). Examination of the different categories of mental illness by gender indicates that men have higher rates of alcoholism and personality disorder, no differences are found in diagnoses of schizophrenia, while women predominate in diagnoses of affective disorders (Jenkins, 1985). Surveys of minor psychiatric disorder in community samples often find a higher prevalence among females, but this is not always the case, particularly when homogenous groups (such as one particular occupational group) are surveyed (Jenkins, 1985).

There are some data which suggest that female doctors are at greater risk of psychiatric morbidity than males, but the data demonstrate that this is not invariably the case. Female doctors were identified as a group particularly at risk of poor mental health by a recent review of UK studies of the mental health of doctors (Williams *et al.*, 1998) and a review of the literature on the mental health of female doctors concluded that over half of female doctors may experience a psychiatric illness, usually depression, over their lifetime (North & Ryall, 1997).

Firth-Cozens found no differences in the prevalence of psychiatric morbidity measured by the GHQ among male and female medical students (Firth, 1986) or junior doctors [Firth-Cozens, 1987#204]. However, when she used a specific measure of depression (the relevant scale of the Symptom Check List), women junior doctors did score more highly than males (Firth-Cozens, 1987). A study of pre-registration house officers found higher scores for mental ill-health among females than males according to the Occupational Stress Indicator (Grainger *et al.*, 1995) and this difference persisted when the same group were surveyed a year later as senior house officers (Grainger *et al.*, 1996). Women senior house officers in the UK undergoing training in accident and emergency departments and their equivalents in the USA and Australia had higher depression scores than their male colleagues measured using the CES-D, indicating that higher rates of mental ill-health have also been found among female doctors outside the UK (Whitley *et al.*, 1991). Women doctors scored more highly than men on the GHQ-12 according to a study of staff working in an NHS Trust in England (Weinberg, 1999). Other studies have not found a higher prevalence among women. In a slightly older study, women general practitioners were found to have significantly lower anxiety and depression compared with a British normative sample of women, measured by the Crown-Crisp experiential index, while male GPs had higher anxiety than a male normative sample (Cooper *et al.*, 1989). Three years later levels of anxiety among the women had increased and were comparable with the norm group, while prevalences for male GPs continued to be higher than the norm (Sutherland & Cooper, 1992). A study of GPs in Staffordshire found no gender differences in cases of anxiety or depression identified by the HADS (Chambers & Campbell, 1996). With regard to burnout, among almost 1000 Australian GPs, males had higher

prevalences of emotional exhaustion and depersonalisation than females (Winefield & Anstey, 1991), yet, as with psychiatric morbidity, other studies have found no difference in levels of burnout according to gender (Kirwan & Armstrong, 1995). Female hospital consultants have been shown to experience a significantly higher prevalence of psychiatric morbidity than their male counterparts (37% v 23%) in a large national study of NHS staff (Borrill *et al.*, 1996). As yet the higher rate of psychiatric morbidity found among women doctors in some, but not all, studies remains to be explained, and further research is needed.

Marital status

Prospective epidemiological studies have shown lower rates of mortality and poor mental health among individuals with high levels of social support compared to those whose levels of social support are low (Berkman & Syme, 1979; House, Robbins, & Metzner, 1982; Billings & Moos, 1982; Turner, 1981). The mechanism by which these effects occur remains to be clarified, and there has been a debate in the literature about whether this mechanism is a direct effect, in that having positive social relationships enhances mood through providing recognition of one's self-worth, or works indirectly, in that social support moderates or buffers against the harmful effects of stress or health. A thorough review by Cohen found evidence for both of these effects occurring (Cohen & Ashby Wills, 1985).

Contemporary medicine in this country has a reputation for being an unsupportive occupational environment; doctors are expected to take in their stride their daily exposure to illness and death and those who do express difficulties are often perceived as rather unsound (Binyon, 1993). The quality of support available outside work may therefore be hypothesised to be an important factor in maintaining doctors' mental health. Among doctors, this has most often been investigated through looking for associations between marital status and mental health. Chambers found that GPs who lived alone had higher anxiety scores on the HADS than those who lived with partners (Chambers & Campbell, 1996). Among senior doctors in the USA, marriage was found to protect mental health (Revicki *et al.*, 1993), though the relationship was weak. A link between marital status and mental health has not always been found in studies of doctors (Cooper *et al.*, 1989). The variable quality of marital relationships may explain why relationships with mental health are not always found. Further work is required to clarify the relationship of marital status to doctors' mental health.

Specialty

Cancer medicine is widely viewed as an inherently stressful specialty, with a large body of anecdotal opinion and largely unsystematic research supporting this view (Delvaux, Razavi, & Farvacques, 1988; Lopez & Meyer, 1985; Peteet *et al.*, 1989; Vachon, 1979; Whippen & Canellos, 1991). Working with patients who have life threatening disease is

thought to expose the cancer clinician daily to suffering and tragedy. The conflict between the curative goals of cancer medicine and the reality that many cancer patients will not respond to treatment in the long term, is hypothesised to lead to death being seen by the doctor as a personal failure. Feeling inadequately equipped to deal with the emotional response of patients and their families to cancer is perceived as a further source of stress to cancer clinicians and their work may also force them to face their own mortality as well as the mortality of family and friends.

Certainly sources of stress such as these are not seen as unique to the field of cancer medicine, but they are thought to occur more frequently than in many other specialties, and must be dealt with in the context of generic difficulties arising from overload, pressure on resources as well as managerial responsibilities and conflicts which currently characterise the provision of healthcare in the UK. As a result of the particular demands made of them, cancer clinicians are believed to be at an increased risk of developing burnout and psychiatric morbidity. This hypothesis has not yet been examined systematically, and in fact there has been very little systematic research into cross-specialty differences in the prevalence of poor mental health in doctors. The only methodologically robust study carried out to date found quite a wide range in the prevalence of psychiatric morbidity across Scottish consultants from different specialties, ranging from15% in medicine and 16% in surgery to 32% in public health and 34% in anaesthetics (Blenkin *et al.*, 1995). These cross-specialty differences were not significant, however, but this may be because the large number of specialist groups examined meant that the number of consultants in each group was small.

Other job factors

Among a group of GPs, those who worked part-time had significantly lower emotional exhaustion and depersonalisation than those working full-time (Kirwan & Armstrong, 1995). Other specific aspects of the doctors' work situation may be hypothesised to influence the stress experienced and likelihood of developing burnout or psychiatric morbidity, but have not been researched. Having an academic post of professor, reader or senior lecturer might be hypothesised to protect against burnout, through providing alternative activities to the full time patient care undertaken by consultants in entirely clinical posts. Involvement in some sessions of private practice, where a consultant has greater control than in the NHS over workload and the type of patients seen, may provide some respite from the increasingly management-controlled NHS practice. Perceiving themselves to be lacking in some of the skills necessary for performance of their role could possibly cause consultants to experience stress at work and therefore to have be vulnerability to developing symptoms of poor mental health. Associations between these specific aspects of the doctors' working practice, which can vary considerably from one doctor to another, have not been investigated.

4.4.2 Dispositional factors

Not everyone who experiences stress will develop negative outcomes in the form of harm to mental or physical health, which suggests dispositional factors may have a role. Family psychiatric history, life experience and personality have been proposed as important vulnerability factors for psychiatric morbidity among doctors (Waring, 1974; Gabbard, 1985; Johnson, 1991). Evidence for their role remains weak, but the influence of these highly personal variables can be problematic to assess, due to the intrinsic difficulties in definition and measurement of these often confounded variables.

Family psychiatric history has been found to be a risk factor for poor mental health in other populations (Harrison & Maguire, 1994) and may well therefore also be a risk factor for doctors, though this has not been demonstrated. Early life experience has been hypothesised as a risk factor for poor mental health among doctors through it's influence on doctors' motivations to go into medicine. It has been hypothesised that doctors choosing to go into medicine in an attempt to deal with unresolved conflicts from childhood through reparation for impotence (giving to others what one would have wanted to give as a child) or reparation for emotional neglect (giving what one would have wanted to receive as a child) are vulnerable to emotional difficulties (Johnson, 1991). Research into these issues is difficult in that it covers highly personal information, some of which the individuals concerned may not even be conscious of, though some research has nevertheless been carried out. Firth-Cozens found evidence that doctors' early experiences were related to their mental health, in that those who had lost a parent, whose parents had divorced or who had been hospitalised as a child had a greater prevalence of psychiatric morbidity compared to those who had not had these experiences (Firth-Cozens, 1992). In addition, the amount of stress these doctors reported from their relationships with consultants was related to their relationship with their father. Lief (Lief, 1971) concluded that 68% of a sample of 60 medical students, in choosing to medicine as a career, were responding, at least partially, to unconscious neurotic drives or unresolved conflicts from childhood. This finding was based on a series of interviews with the students from carried out by psychiatrists. Certainly therefore there are data to suggest the possibility that early life experiences may have an influence on doctors' mental health, but whether this is through influencing doctors' motivations to enter medicine or through creating other vulnerabilities remains unclear.

With regard to personality, individuals who score highly on a scale measuring Type A "stress prone" personality, characterised by high levels of competitiveness, impatience and restlessness have been found to be at higher risk of poor mental health, and this relationship has been confirmed among GPs (Cooper *et al.*, 1989). A comparison of different groups of health professionals within one large UK health authority found that doctors had the highest levels of Type A personality than all other groups except general

managers (Rees & Cooper, 1992), though there were no significant differences in mental health scores, assessed using the OSI. Other aspects of personality have also been examined. Firth-Cozens found that doctors who were classified as having clinically significant psychiatric morbidity (GHQ-28) as students, and also two years later as junior doctors, had higher levels of empathy and were more self critical at both time points (Firth-Cozens, 1987). When surveyed again some years later as qualified GPs, self criticism was once again correlated with psychiatric morbidity to a greater degree (r=0.34) than with previous psychiatric morbidity (r=0.15) or hours worked in the last week (r=0.16) . Further, Firth-Cozens found that personality characteristics linked to psychiatric morbidity were shown through regression to be related to the quality of doctors' relationships with their mother and father (Firth-Cozens, 1992).

Lemkau, Purdy, Rafferty, and Rudiscill (1988) found relationships between burnout and aspects of doctors' personality, measured by the Myers-Briggs Type Indicator (Myers, 1987). Doctors categorised as more extroverted, intuitive, feeling, and perceptive had lower burnout, relative to those not characterised in these ways. Individuals with these characteristics are original and independent, tend to be stimulated by difficulties and are ingenious at solving them. Associations have also been found between personality types identified by the Millon Clinical Multiaxial Inventory (Millon, 1976) and burnout. Junior doctors with higher scores for avoidant, dependent, antisocial or passive-aggressive personality styles had higher emotional exhaustion, while those with higher scores on schizoid or dependent personality styles reported lower personal accomplishment. Individuals with a dependent personality style tend to rely to an excessive degree on the opinions and directions of others, while those with a passive aggressive style tend to express themselves, particularly when angry, in indirect or covert ways. This study suggests that doctors with a preference for what might be classified as dysfunctional personality styles appeared to experience higher levels of burnout in the form of emotional exhaustion and depersonalisation.

In the rare use of a prospective design, McCranie and Brandsma (1988) followed up for 25 years 440 US doctors whose personality and psychological adjustment had been assessed just before entering medical school using the Minnesota Multiphasic Personality Inventory (MMPI). They found significant though weak correlations (.09-.17) between burnout at the later time point, measured by the Tedium scale (Pines *et al.*, 1981) and MMPI scores relating to neuroticism, psychoticism/infrequency, inadequacy, depression, psychasthenia and social introversion at the first. There were no significant relationships with current job characteristics measured, namely specialty, practice arrangement (solo vs partnership vs group), hours worked or percentage of time in direct contact with patients. This study can hardly be used to compare the relative importance of personal vs job characteristics to burnout, though the authors attempt to, since environmental

factors were assessed in far less detail than personality. In fact, the weakness of the correlations with personality characteristics suggests burnout is influenced to only a small degree by certain longstanding maladaptive personality traits, and finding associations between depression and burnout over time confirms that one of the best predictors of poor mental health is previous experience of poor mental health.

Deary (Deary *et al.*, 1996b) found among Scottish hospital consultants the stress process was best represented as a pathway from personal variables, mainly neuroticism, through emotion-focussed coping strategies and reported job stress to burnout, in the form of emotional exhaustion and depersonalisation, measured by the Maslach Burnout Inventory. This indicated that among consultants personality influenced stress outcomes in part indirectly, through coping and appraisal, and that aspects of both the work environment and personality influenced the amount of stress reported. In another study, psychiatrists' relatively high levels of depression and emotional exhaustion compared to surgeons were partially explained by differences in their personality profiles, psychiatrists having higher neuroticism, openness and agreeableness and lower conscientiousness (Deary, Agius, & Sadler, 1996a).

Research into associations between personal factors and vulnerability to psychiatric morbidity finds these to be generally rather weak. Family psychiatric history has not been demonstrated as a risk factor for doctors, while research into the influence of early life experience appears largely speculative and is as yet little understood. Diverse aspects of personality, particularly "hard driving" Type A personality, being highly empathic and critical of oneself, neuroticism and other dysfunctional personality styles such as dependent, avoidant, antisocial or passive-aggressive, are associated with higher psychiatric morbidity, but the associations found are generally very small.

4.5 Summary

There is some indication from mortality ratios and studies of doctors receiving treatment that the rate of poor mental health among doctors is relatively high compared with the general population and other professional groups. Some population based research using standardised instruments has been carried out to investigate the prevalence of psychiatric morbidity and burnout among junior doctors and GPs. However, at the time the current study was undertaken, there were no such published studies in the literature examining the prevalence of psychiatric morbidity or burnout among UK hospital consultants nationally. A number have been carried out since this study began, but they do not provide comprehensive data, being characterised by one or more of small sample sizes, poor response rate and geographic specificity. As a result, quite a range of prevalences of poor mental health has been found among hospital consultants. Worryingly, there are data suggesting the prevalence may be as high as among junior doctors and certainly appears

higher than is found among the general working population. This prevalence of psychiatric morbidity is perhaps surprising to find among doctors who have survived what are perceived as the particularly severe pressures of life at a junior level and been successful in reaching the most senior level in hospital medical practice. With the current diversity in the prevalence of psychiatric morbidity reported across studies, a large national study with a good response rate would be helpful at this stage to establish more clearly the prevalence of psychiatric morbidity among hospital consultants currently practising in the UK.

The prevalence of more specifically work-related distress in the form of burnout has not yet been investigated in UK hospital consultants. Further clarification is also required regarding individual differences among hospital consultants which confer vulnerability to experiencing stress and poor mental health. There are some data to indicate that greater vulnerability to poor mental health exists among female consultants, those who are relatively young in age, and those who are single. Relationships, where found, have not been consistent across different samples of doctors and have not been examined comprehensively in hospital consultants. There has also not yet been any investigation of whether hospital consultants working in particular types of role, such as an entirely clinical vs partly academic role, or working full- vs part-time, or in particular specialties such as oncology, have any greater risk of developing poor mental health

CHAPTER 5: Study rationale, aims and hypotheses

5.1 Rationale

Although research using standardised instruments has been carried out to investigate the prevalence of psychiatric morbidity and burnout among junior doctors and general practitioners, it is lacking currently for senior hospital doctors. The few studies of hospital consultants undertaken so far have produced inconsistent estimates of the prevalence of poor mental health among this group, the likely result of methodological limitations. There remains therefore a lack of clarity about the extent of psychiatric morbidity and burnout among hospital consultants nationally. Indications that the prevalence may be as high as is found among junior doctors and certainly higher than among the general working population require confirmation in a study of a large national sample of consultants. Such a study is undertaken here.

There is also a lack of clarity regarding the causes of poor mental health in hospital consultants. With regard to occupational sources of stress, assessment of these among doctors has been characterised by studies which are often questionable in terms of their representativeness, again through small sample sizes or poor response rates. The data on sources of stress for doctors in the UK have been derived largely from junior doctors, general practitioners, or doctors from one specific specialty. The extent to which these sources of stress are experienced by senior hospital doctors remains unknown. At the time the current study was undertaken, there had been no in-depth examination of sources of stress at work experienced by UK hospital consultants as an occupational group. The same situation exists for sources of job satisfaction, with such data as there are being based largely on data from junior doctors and general practitioners and their relevance to senior hospital doctors remaining unknown. Although doctors often report very high levels of satisfaction with particular aspects of their role, as might be expected among an occupational group with high status and the opportunity to influence the lives of their patients profoundly, there has been no exploration at all of the ways in which their job satisfaction might influence their mental health.

As well as occupational risk factors, a fuller examination of the causes of poor mental health among hospital consultants was undertaken here, through exploration of individual factors which may confer vulnerability. Female consultants, those who are relatively young in age, and those who are single have been shown to have a greater prevalence of poor mental health. Not all studies have found this, however, and again the role of such factors has not been examined comprehensively in hospital consultants. What is also unclear is whether working in particular types of role carries an increased risk of poor mental health for hospital consultants, such as an entirely clinical vs partly academic role, or working full- vs part-time.

5.2 Aims

The overall aims of this study were:

- To identify the aspects of work perceived by hospital consultants as contributing to the stress they experienced in their work

- To identify aspects of work perceived by hospital consultants as contributing to their job satisfaction

- To assess the prevalence of general psychiatric morbidity and work-related distress in the form of burnout among a large national sample of UK consultants using standardised instruments

- To identify whether any job or demographic characteristics of hospital consultants conferred increased vulnerability to psychiatric morbidity and burnout

- To investigate the relationships of experiencing stress and satisfaction from various specific aspects of their work with the mental health of hospital consultants.

The research undertaken here to assess job stress and satisfaction among senior hospital doctors and its relationship with their mental health involved two phases. Preliminary work comprised in-depth interviews with a small sample of hospital consultants to obtain detailed information on current sources of job stress and job satisfaction. From these data, questionnaires were developed to assess sources of job stress and satisfaction in hospital consultants. The main study involved a postal questionnaire survey of a large national sample of hospital consultants to assess the importance of these sources of stress and satisfaction more broadly among UK consultants, to assess the prevalence of poor mental health in this occupational group and to explore relationships between mental health and the job stress and satisfaction experienced from these aspects of work.

<u>Preliminary work</u>

At the time this research was carried out there were no instruments in existence which had been developed specifically to measure sources of job stress and satisfaction among hospital consultants in the UK. There are, however, a number of instruments designed to assess sources of stress in the workplace generally, such as the Job Content Questionnaire (Karasek, 1985), Work Environment Scale (Moos, 1981), Occupational Stress Inventory (Cooper, Sloan, & Williams, 1988b), and the Job Diagnostic Survey (Hackman & Oldham, 1975), along with instruments designed to assess sources of stress health care staff, such as the Health Professionals Stress Inventory (Wolfgang, 1988).

These instruments assess a number of sources of stress ranging from job demands such as workload, to the absence of other factors hypothesised to cause job satisfaction. Although the use of self-report instruments to assess sources of job stress has been widely criticised in the literature (see chapter 2), they continue to be used extensively and are likely to continue to do so, because of the difficulty in obtaining assessing these objectively (Hurrell *et al.*, 1998).

While instruments to assess stress at work certainly are feasible to use to assess sources of job stress in UK hospital consultants, they contain very general sources of stress at work, in order for these instruments to be applicable across a wide range of jobs. While they will indicate which of these general sources of stress are experienced by consultants, they are unlikely to include all of the specific aspects of their work experienced by consultants as stressful. The sources of stress may also appear rather unrelated to the day-to-day work, particularly of doctors, since they were generally developed on office based workers. They were all, in addition, developed and validated 25 or so years ago, in which time the world of work has undergone immense change, and their relevance to current occupational roles may need to be re-evaluated (Hurrell *et al.*, 1998). The utility of these general questionnaires is that they enable investigation of associations between broad job characteristics and, for example, health outcomes or performance. Where research seeks to identify specific sources of stress for a particular occupational group, particularly with a view to formulating proposals for change, an instrument which can provide richer data is more appropriate (Hurrell *et al.*, 1998). As is the case for job stress, existing questionnaires which measure job satisfaction, such as the job satisfaction scale of the OSI (Cooper *et al.*, 1988b) and the Job Satisfaction Scales (Warr *et al.*, 1979), are rather too generalist to assess the particular aspects of work contributing to job satisfaction for hospital consultants in the level of detail required for this study.

In order to identify comprehensively the current sources of stress and satisfaction at work for hospital consultants, in this study instruments were developed in the current study specifically for this occupational group. Although time consuming to develop, such instruments would more fully meet the aim of identifying sources of job stress and satisfaction than using a questionnaire designed for general occupational use. For the preliminary work, interviews were undertaken with consultants, the purpose of which was to identify for each consultant all of the aspects of work perceived as causing them stress. These interviews covered detailed information and because of the time taken to complete them would be feasible to carry out on only a small number of consultants. However, for that small group of consultants, chosen to be representative of hospital consultants nationally, an in-depth, comprehensive picture of the sources of stress in their role would be produced, based on these consultants' current experiences. These data would be used to develop questionnaires to assess job stress and satisfaction for hospital

consultants . The development and field testing these instruments is described in chapter 6.

National questionnaire survey

The second phase of work comprised a cross-sectional questionnaire survey of a large national sample of hospital consultants. This study was designed to determine the extent to which particular sources of job stress and job satisfaction identified from consultants' own experiences in the preliminary work are experienced as stressful by a broader sample of consultants. Study-specific questionnaires, with items derived directly from interviews with hospital consultants, would have a higher face validity for this large survey than an instrument designed for more general occupational use. This would be likely to be an important factor in obtaining a high response rate from consultants. Other studies of doctors have reported a low response rate, and achieving a good response was a further goal of this study.

From this sample, data would also be obtained to enable a comprehensive estimation of the prevalence of poor mental health across UK hospital consultants nationally. Two forms of poor mental health were assessed: psychiatric morbidity, a pervasive form of poor mental health, together with specifically work-related poor mental health in the form of burnout. The large sample, required in order that the data were representative of different specialist groups and geographic areas, necessitated the use of questionnaires, rather than more in-depth interview techniques. Structured clinical interviews have a number of advantages over self-report questionnaires in the assessment of psychological dysfunctioning. They are based firmly on defined criteria, such as the DSM-IV criteria for the diagnosis of particular types of dysfunction, are carried out by individuals trained in the interview technique and application of the diagnostic criteria and enable a flexible approach in each interview to the acquisition of sufficient data for a clear diagnosis to be made. They are, however, highly labour intensive and are not in general feasible to use in large scale surveys. Using standardised instruments which have a high level of sensitivity (accurate identification of individuals with a significant level of the dysfunctioning being investigated) and specificity (accurate identification of individuals without a significant level of dysfunction) provide the advantages of clinically tight diagnosis, with a known degree of error.

At the time the study was carried out, there were no studies which had measured psychiatric morbidity among hospital consultants in the UK using standardised questionnaires. For this study the General Health Questionnaire (GHQ), a widely accepted and reliable screen for psychiatric morbidity in community samples and occupational settings, was selected (Goldberg & Williams, 1988; Banks *et al.*, 1980). The GHQ was chosen over other occupational measures of poor mental health, because it has

been shown to demonstrate good validity against a clinical psychiatric interview (to a greater extent, for example, than the Crown-Crisp experiential index (Crown & Crisp, 1979)) and because it is widely used (to a greater extent than the Symptom Check List (Derogatis *et al.*, 1973)). When used with a cut-off score, the GHQ can be used to provide an estimate of the prevalence of clinically significant psychiatric morbidity, a level of morbidity for which professional intervention may be warranted. Since it is widely used, it enables comparisons to be made with other samples. The 12-item version was chosen for this study because of its brevity, in light of the fact that consultants were also to be asked to complete several other questionnaires at the same time.

Burnout was assessed in addition to psychiatric morbidity for two reasons. First, since it is a specifically work-related form of poor mental health, it could be hypothesised to be likely to have stronger relationships with work-related factors than psychiatric morbidity. Second, since context-specific burnout is conceptualised as developing before the more pervasive psychiatric morbidity, identification of causal factors for burnout may provide an opportunity for intervention relatively earlier in the process of development of poor mental health. Burnout was assessed using the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986), the only instrument available currently which has been demonstrated to measure burnout in a comprehensive and psychometrically robust way.

As described in chapter 2, the use of self-report questionnaires to assess both sources of stress and stress outcomes has been heavily criticised in the epidemiological stress literature as being likely to demonstrate "trivial" associations between these two sets of variables (Hurrell *et al.*, 1998). The use of multiple measurement modalities to assess both sources of stress and mental health outcomes, for example using physiological measures in addition to self-report assessment of poor mental health, has been suggested as a way to avoid identifying meaningless associations (Hurrell *et al.*, 1998). This course of action is problematic, however, since the relationships between mental health and physiological measures are not fully understood and are by no means linear. In addition, physiological measures can be influenced by many factors in addition to experiencing stress at work. The approach taken in the current study to minimise the likelihood of obtaining trivial relationships was to use self-report questionnaires, but in doing so, to select (1) a clinically validated standardised instrument to measure psychiatric morbidity, (2) a psychometrically robust measure of burnout, and (3) stress and satisfaction questionnaires grounded very firmly in the environment, all of which permit less of a role for participants' subjective evaluations.

It has been advocated that research investigating associations between sources of stress and mental health should also measure negative affect, a pervasive tendency toward negative emotions and self-concept (Watson & Clarke, 1984). The tendency towards

negative affect is hypothesised to be a confounding factors in the relationship between sources of stress and poor mental health (Brief, Burke, George, Robinson, & Webster, 1988), since it is likely to cause an individual to perceive both the work environment and their mental state negatively. Early research into the confounding effect of negative affectivity did indeed find it explained a significant amount of the variance in the relationship between sources of stress and poor mental health (Brief *et al.*, 1988). The extent of its influence remains controversial, however, with more recent and robust research (longitudinal, more detailed measurement of sources of stress) finding the relationship unchanged by controlling for negative affectivity (Schonfield, 1996). With the confounding effect of this variable remaining unproven, it was not assessed in the current study.

In the main questionnaire survey, measures of poor mental health are the dependent variables and job stress, job satisfaction, job and demographic characteristics the independent variables. Job satisfaction is generally conceptualized and assessed in research as an outcome of the stress. Yet in the same way that an individual experiencing stress from aspects of their occupational role may be hypothesised to be at increased risk of developing poor mental health, experiencing satisfaction from work could be hypothesised to reduce the likelihood of developing mental health. Whether job satisfaction has a relationship of this type with mental health will be investigated here.

5.3 Hypotheses

From the literature, the following hypotheses will be tested in the main questionnaire survey:

Hypothesis 1 The prevalence of psychiatric morbidity and of burnout among hospital consultants will increase as the stress they experience from aspects of their work increases.

Hypothesis 2 The prevalence of psychiatric morbidity and of burnout among hospital consultants will decrease as the satisfaction they experience from aspects of their work increases.

Hypothesis 3 There will be an interactive effect of job stress and job satisfaction on hospital consultants' mental health whereby job satisfaction will have a buffering effect on the relationship between consultants' job stress and their mental health.

Hypothesis 4 Women hospital consultants will have a higher prevalence of psychiatric morbidity and burnout than male consultants.

Hypothesis 5 Hospital consultants working in oncology will have a higher prevalence of psychiatric morbidity and burnout than those who working specialties which work with cancer patients less frequently.

Hypothesis 6 Hospital consultants working in academic posts (university professor, reader or senior lecturer) will have a lower prevalence of psychiatric morbidity and burnout than those in entirely clinical posts.

Hypothesis 7 Hospital consultants working in full-time posts will have a higher prevalence of psychiatric morbidity and burnout than those working part-time. For this investigation Maximum Part Time working, which consists of 10 sessions (half days) a week, is counted as full-time.

Hypothesis 8 Hospital consultants working in private practice for part of their working week will have a lower prevalence of psychiatric morbidity and burnout than those whose work is entirely within the NHS.

Hypothesis 9 Hospital consultants who perceive they have received insufficient training in communication and/or management skills will have a higher prevalence of burnout and psychiatric morbidity.

CHAPTER 6: Development of instruments to measure sources of stress and sources of satisfaction at work for UK hospital consultants

This chapter describes the development and field testing of questionnaires to obtain detailed information on current sources of job stress and job satisfaction for hospital consultants. The initial exploratory work which would begin to conceptualise sources of stress for consultants involved a review of the literature on job stress and satisfaction and in-depth semi-structured interviews with a sample of the consultants being studied, as advised by Oppenheim (Oppenheim, 1992). Procedures were then used to select items for inclusion in the questionnaires. These questionnaire items were then tested for acceptability and comprehensibility on further samples of consultants from the specialties studied.

The initial step in setting up this study involved forming an expert panel, whose cooperation and involvement would be important in order that the study could be carried out, through the provision of political and institutional support. Individuals who were invited to be involved included members of the relevant Royal Colleges, who facilitated access to participants for the study, and important opinion holders in this field. The members of this group are listed in appendix A.

6.1 Participants

The sample of consultants selected for this study consisted of those working in four different specialties. A decision was taken to study larger numbers of consultants working in a few specialties, rather than smaller numbers working across the whole range of specialties, since one of the aims of the study was to examine differences in the prevalence of poor mental health between oncologists and other specialists. Another study has examined consultants across all specialties in Scotland, but differences in the prevalence of psychiatric morbidity were found not to be statistically significant (Blenkin *et al.*, 1995). The small number of consultants surveyed in each specialty may have been a factor in the lack of significance reported.

The specialist groups chosen were surgery, gastroenterology, radiology and oncology, which were selected to represent as broad as possible a range of the different demands made of consultants. Surgeons work in a prestigious specialty with a heavy workload, involving frontline, often high risk, intervention with patients. It is an intensely competitive specialty, at entry and beyond. Gastroenterologists are also frontline specialists, who , as with surgeons, have heavy on-call responsibilities. Gastroenterologists, as well as dealing with patients who have gastrointestinal problems, also work as general physicians and therefore see patients with a diverse range of medical problems. Radiologists undertake diagnostic investigations using highly technical equipment, such as magnetic resonance

imaging and ultrasound, as well as a growing amount of interventional work. Radiologists provide a clinical support service, in that they do not have direct clinical responsibility for patients, but carry out their work at the request of other specialists. Oncologists have a high degree of exposure to patients with incurable disease and to dying patients.

6.2 Development of a questionnaire to measure sources of stress for hospital consultants

6.2.1 Literature review

The aim of the literature review was to compile a comprehensive list of potential sources of job stress for senior hospital doctors currently working in the UK. The review of the literature covered sources of job stress identified in the generic occupational stress literature together with literature specifically relating to doctors both in general and working in the particular specialties under investigation here. Medline, PsycInfo and BIDS literature databases were searched using various combinations of search terms and the references from key papers were followed up. The search terms used are shown in appendix B.

As described in chapter 2, Cooper and Marshall (1976) have reviewed the literature on sources of stress at work and identified six main categories common to all jobs, though varying in the degree to which they will be experienced as stressful in different jobs. Cooper's model of the job characteristics important for mental health has been used to guide research into sources of stress at work across a wider range of occupational groups in this country, and has been shown to be relevant, in particular, for NHS staff generally (Rees & Cooper, 1992) and doctors specifically (Sutherland & Cooper, 1993; Swanson *et al.*, 1996). These categories extend beyond specific aspects of a particular job to consider relationships at work, career issues and organisational factors, together with the impact of work on home life (Box 1). In order to ensure that the process of developing the questionnaire for consultants covered potential occupational sources of stress in a comprehensive manner, this model was used to provide a framework for the process. As well as providing a framework, it is recognised that imposing a model on the identification of sources of stress for consultants also sets limits on the process. Doctors tend, however, to focus on clinical aspects of their work when thinking about aspects which cause them stress (see chapter 2). Therefore the disadvantage of the model in setting limits on the process was perceived as being outweighed by the utility of the framework in broadening out doctors' typically narrow view of aspects of their work which cause them stress. This literature review on sources of job stress was presented in full in chapter 2.

Box 1-*Six categories of sources of stress identified by Cooper (1976)*

* **job-specific factors**
* **relationships at work**
* **role in the organisation**, eg having a role which is ambiguous or in which conflicting demands are made
* **career development**, eg lack of job security, lack of opportunity for promotion
* **organisational structure and climate**, eg lack of opportunity for participation in decision-making
* **conflict between work and home life**

At the same time as the literature review was being carried out, time was spent having an in-depth induction into the work of senior clinicians. This involved attending ward-rounds and team meetings in the departments of the specialties being surveyed at Guy's, St Thomas', Mount Vernon and Lewisham hospitals, sitting in on clinics and conducting general discussions with many of the consultant doctors participating in these activities about what they perceived as the sources or stress in their work.

As a result of these general observations and discussions with consultants, the review of the literature and a brainstorming session with the expert panel, thirty-three potential sources of job stress for UK hospital consultants were identified (table 6.1). Almost all of the items identified in the literature review were included in the interviews, because the view was taken that it was important to be over-inclusive at this stage and to allow the consultants themselves to exclude items which were not relevant to their work during the interview process. Only those which appeared specific to the role of doctors who were not consultants were excluded.

Table 6.1-*Thirty-three potential sources of stress identified from the literature as relevant to UK consultants and categorised according to Cooper's six categories.*

Category of occupational stress (Cooper, 1976)	*Source of job stress*
Job-specific factors	J1. Involvement with the physical suffering of patients J2. Involvement with fatal illness and death J3. Involvement with the emotional distress of patients J4. Feeling of failure arising from inability to cure cancer/control symptoms J5. Sense of responsibility concerning toxicity caused by treatment you prescribe J6. Making decisions where mistakes have severe consequences J7. Breaking bad news to patients and their relatives J8. Dealing with distressed, angry or blaming relatives J9. Threat of being sued for malpractice J10. Ethical dilemmas about clinical or research issues J11. Keeping up to date with current clinical and research practices
Relationships at work	R1. Relationships with consultant colleagues R2. Relationships with junior medical staff R3. Relationships with nurses R4. Relationships with administrative staff
Role in the organisation/ organisational structure	O1. Having too great an overall volume of work. O2. Having conflicting commitments to different organisations/ functions, eg patient care /management/research/College O3. Having inadequate facilities/staff to do your job properly O4. Feeling you have insufficient input into management decisions affecting your work O5. Increased management of clinical activities by non-doctors O6. Increased need to take on managerial responsibilities O7. Having a conflict of loyalties or responsibilities (eg clinical vs managerial) O8. Having limits imposed on your clinical freedom O9. Being responsible for other staff O10. Being constantly evaluated by colleagues O11. Encountering prejudice from patients/other members of staff because of sex/colour
Career development	C1. Lack of job security C2. Evaluations/appraisals of your job performance C3. Lack of opportunities to develop particular career interests C4. Feeling you are poorly paid for the job you do C5. Feeling that as a result of recent NHS changes you have a greater clinical workload, with less time for research or conferences C6. Feeling regret about choosing your particular specialism or going into medicine
Home/work conflicts	H1. Lack of personal/free time, work encroaching on your personal life

6.2.2 Interviews

Interviews were then carried out with consultants from each of the four specialties being surveyed, in order to identify the extent to which the 33 potential sources of stress identified from the literature were experience as such by consultants working in diverse specialties the UK currently. The interviews were intended to provide the means to test both the relevance of the sources of stress identified from the literature to the current experience of stress by consultants, as well as to identify new sources not already covered by the existing literature. Because funding had been obtained initially to study oncologists only, this work was initially carried out on oncologists and subsequently on consultants from the other three specialist groups.

6.2.2.1 Interviews with oncologists

Nine consultants working in clinical and medical oncology were approached to ask whether they would be willing to carry out an interview on the sources of stress in their role. This was a judgement sample (Oppenheim, 1992) chosen to represent as wide a spread of consultants as possible from the study population. Consultants were therefore chosen of different ages and from both genders, from the different environments in which cancer doctors work, ie teaching hospitals / district general hospitals / non-university cancer centres, and from different geographic areas in the UK. In this way, the sample would be as representative as possible of consultants currently working in oncology. A rolling cycle of interviews was undertaken, with each interview analysed before the next was carried out. Interviews were terminated after nine had been carried out because "saturation" was reached after eight interviews, with subsequent interviews no longer adding significant data (Glaser & Strauss, 1967).

All nine consultants agreed to be interviewed. Interviews were carried out at the consultants' usual place of work, which involved travelling around the country to carry out the interviews. At the beginning of the interview each consultant was given an introduction to the study. In this consultants were informed that the aims of the study were to investigate levels of emotional distress experienced by consultants in the UK and also to identify the aspects of work they perceive as causing both stress and satisfaction. It was mentioned that the impetus for the study arose from an increasing awareness among cancer clinicians in particular of the experience of stress and burnout amongst themselves and their colleagues. This situation had been highlighted by a recently published study in the USA which reported high levels of burnout among oncologists there (Peteet *et al.*, 1989). Consultants were informed that in the study levels of emotional distress would be measured using standardised questionnaires, in order to enable comparison with other professional groups. However, study-specific questionnaires were being designed to identify aspects of work perceived as stressful and satisfying and the interview in which

they were taking part formed part of the process of developing these questionnaires.

In the interview consultants were asked to rate each of the thirty-three aspects of work (table 6.1) according to the extent to which each one had contributed to the stress or satisfaction they had experienced in their work over the past few months. The consultants were asked to rate each source of stress separately in terms of 1) its' severity and 2) the frequency with which it occurred. Assessing severity and frequency separately was perceived as desirable in order to be able to differentiate between, for example, an aspect of work which was experienced as highly stressful yet encountered rarely and one which was moderately stressful, but encountered often. Both ratings were made on 4-point scales with the range 0 (not at all), 1 (a little), 2 (quite a bit), 3 (a lot). A four point scale was judged to be adequately broad to capture the range of consultants' responses.

The first three consultants interviewed reported that they found it difficult to rate each aspect of work as a source of stress separately according to its severity and frequency and would have preferred to give one overall rating. The use of a single scale would mean a loss of information, but the difficulty reported by the consultants in using this scale precluded continuing with it and for all remaining interviews consultants were asked to rate each item simply according to its importance as a source of stress. In fact, other instruments which in early versions advocated the use of both frequency and intensity ratings have subsequently replaced them with ratings on a single scale, since the dual rating was found to produce a high degree of overlap of information (Maslach & Jackson, 1986). For the first three interviews which had already been carried out, the intensity rating alone was used.

It was not assumed that the literature search had produced all the relevant sources of stress currently experienced by consultants - new ones may have arisen since previous literature was published. For example, in recent years hospital consultants have had a greater role in management than was previously the case. The consultants were asked, therefore, whether there were any other aspects of their work which they experienced as stressful and if so to describe them. The interviews were tape recorded, in order to have access to the exact wording consultants used to describe these additional sources of stress at work. Any new sources of stress reported by each consultant were transcribed verbatim. The interview schedule is shown in appendix C - Interview schedule.

6.2.2.2 Item selection for oncologists

Procedures were then undertaken to determine which of the items to include in the questionnaire. The mean score across the 0-3 rating scale of importance was calculated

for each aspect of work. This would reflect the degree to which it was experienced as a source of stress for consultants in that specialty. The use of the mean score rather than an alternative such as the proportion of consultants rating the item, for example, "a little" important, was selected because a mean score for an item was greater than or equal to 1 would indicate that on average consultants reported that the source of stress was at least "a little" important. In this case the item was automatically included in questionnaire.

Using this rule, 20 of the original 33 items were retained (from table 6.1, J1-8, J11, R1, R4, O1-4, O6-7, O9, C2 H1). The items excluded at this stage on empirical grounds were then rated independently by four "core" members of the expert panel (a psychiatrist, an oncologist and two psychologists, one of whom was myself) according to how necessary it was judged to be that they were retained for other reasons. These other reasons centred on the fact that while one of the main aims of the study was to identify which aspects of consultants' work are perceived by them as causing stress, this research was being carried out in a wider social and political context. It was therefore perceived as necessary to include some items because of their potential professional significance. For example, it was judged by the expert panel as important to investigate within the whole consultant sample being surveyed, rather than the small interview sample, whether aspects of their work, such as relationships with junior medical staff and levels of pay, were causing the consultants stress. Ratings for the necessity of inclusion for items excluded on empirical grounds were made on the following scale:

0 = this item should not be included
1 = unsure
2 = this item should be included

Items given a rating of "2" by two or more of the raters were reinstated in the questionnaire. This stringent cut-off was used in order to keep items added through this process to a minimum, since this process does not follow psychometric procedures for questionnaire development. The process was seen as acceptable, however, because principal components analysis would be carried out subsequently and only items which loaded on to factors would be used for the analysis covered in this thesis. Through this process a further six of the interview items were retained in the questionnaire (J9, R2-3, O5, C4, C6), leaving 26 in total.

Items J4, O3 and C6, which each clearly referred to two separate aspects of work, were each split in to two separate items in order to avoid confounding. Item O5 had been reported as unclear by several of the interviewees and was therefore re-worded into "Having your clinical work restricted by financial considerations". For the same reason

item O9 was split into two separate items: "Being responsible for the work of other staff" and "Being responsible for the career development of other staff". Item H1 (home/work conflict) was rated very highly by all interviewees and as a result of their comments was split into three separate items as follows: "Disruption of your home life through spending long hours at work", ".... as a result of taking paperwork home with you" and ".... as a result of being on call".

In the interviews consultants had been asked to describe any additional aspects of work which they experienced as stressful. These were transcribed from tapes of the interviews and the resultant list circulated to the four core members of the expert panel who again made judgements about which to include, made as before by giving each item a rating according to its importance. Ratings were made on the same three point scale as was used for items which failed automatic inclusion to the questionnaire on empirical grounds.

Issues taken into consideration when making these importance ratings were: the number of consultants who had suggested the aspect of work as a source of stress, whether the new source of stress was already covered sufficiently by existing items, and whether the source of stress was highly specific to the circumstances of the consultant who suggested it. For example, one consultant suggested as a new item "The relentlessness of the job...being unable to take holidays because things go wrong and work stacks up", which was given a zero rating by all four judges because it was already covered by the existing items "Having too great an overall volume of work" and "Disruption of your home life through spending long hours at work". Other consultants each suggested "Anxieties over your ability to do the job" and "Interpreting any symptom of your own or in your family as cancer all the time" and "Knowing you could greatly increase your income if you took a few private patients, but feeling this is morally wrong" were all given zero ratings by all four judges on the grounds that they each appeared to be personal concerns and were each only suggested by a single consultant.

In all, twenty-eight additional sources of stress were suggested by the consult oncologists interviewed, but the great majority were judged to be already covered by the existing questionnaire items. Only four items were given a rating of "2" by two or more of the raters and were added to the questionnaire, namely:

"Feeling your accumulated skills and experience are not being put to the best use"

"Uncertainty over the future of funding of your unit/institution."

"Encountering difficulties in relationships with managers."

"Encountering difficulties in relationships with paramedics, eg social workers and occupational therapists."

These four new items, together with the six new items created from splitting existing items, resulted in ten new items being added to the 26 retained from the original list of 33. This resulted in the prototype version of the stress questionnaire for oncologists containing 36 items.

The stem chosen for the questionnaire itself was "To what extent have the following factors contributed to the stress you have experienced in your job in the last few months". Ideally it would have been preferable to obtain separate ratings from consultants concerning the severity and frequency with which each aspect of work was experienced as a source of stress, but the difficulty consultants in the interviews had reported in rating the sources of stress in this way argued against this. The stem "The extent to which an item contributes to stress.." was therefore chosen as one which provides a composite of both severity and frequency. It is recognised that there is a limitation with this stem, in that it does not differentiate between a consultant who is experiencing a lot of stress at work overall to which the item being rated is contributing, from one who is experiencing only a little stress at work overall to which the item is contributing. However, this stem was chosen because, within this limitation, it provided a reasonable composite measure of the severity and frequency with which each source of stress was experienced.

A general change was also made to questionnaire items at this stage, in that the wording of items was changed in the direction of encouraging personal involvement through using the less formal present participle of the verb throughout. For example item J1 was changed from "Involvement with the physical suffering of patients" to "Being involved with the physical suffering of patients". This more personal phrasing of the items was designed to encourage consultants to think of themselves in the situation to which the source of stress refers while they were rating it.

Finally, an item was added to the questionnaire asking consultants to rate "Overall how stressful do you find your work?" on a 5-point scale, from 0 "not at all stressful" to 4 "extremely stressful". This was to enable each consultant to make a global assessment of the stress experienced in his/her work.

6.2.2.3 Interviews with surgeons, gastroenterologists and radiologists

Funding limitations in the initial phase of the study resulted in the preliminary work on the other specialist groups being carried out after the preliminary work on oncologists had been completed. Twelve consultants working in surgery, gastroenterology, and radiology were approached to carry out interviews and again all agreed to participate. As with the oncologists these were judgement samples chosen to be as representative as possible

of the population of these specialists, through reflecting the different characteristics and job locations of consultants in each specialty. The procedures used for the interviews were identical to those used for the oncologists, except that the items which these consultants were not the original 33 derived from the literature, but rather the 34 which had already been refined following interviews and acceptability testing with consultants working in oncology (see section 6.2.3.1).

6.2.2.4 Item selection for surgeons, gastroenterologists and radiologists

As for the oncologists, the mean rating given by consultants in these specialties was calculated for each item and items with a score of 1 or more were automatically included in the questionnaire. Again those with a score below 1 were rated by three members of the expert panel according to how important it was judged they be included for other reasons. As a result of this process nine of the original thirty-four items which had been developed on oncologists were judged to be irrelevant to one or more of the three other specialty groups and were removed from the core part of the questionnaire, leaving 25 items.

Thirty-five additional sources of stress were suggested by the consultant surgeons, gastroenterologists and radiologists during the interviews. The majority of these related to aspects of the specific role of each specialist group. A few were quite general, but none of these was given a sufficiently high rating by the core members of the study expert panel to enable its inclusion in the questionnaire, on the grounds that each was either already covered sufficiently by existing items or was highly specific to the individual consultant. For example, one surgeon suggested "Lack of support from the department for doing academic work...No allowance for the extent these eat into your time..", which was already covered by the item "Having conflicting demands on your time", while "Having to appear in public for things such as fund raising" was a highly individual source of stress. A gastroenterologist reported that "Most gastroenterologists continue to practice general medicine in addition to their specialist work. Having to wear the hats of general physician, clinical gastroenterologist and endoscopist can be difficult", but again this was covered by "Having conflicting demands on your time", while "Having to go into hospital at night, eg to deal with a bleeding ulcer" was covered by "Disruption of your home life as a result of being on call".

6.2.3. Acceptability testing

The prototype questionnaires were then sent out to further samples of consultants from the four specialties being surveyed in order to identify and resolve any problems in the questionnaire design and administration before the main study was carried out.

6.2.3.1 Acceptability testing for oncologists

The 36-item questionnaire developed from interviews with oncologists was then sent to a further eight oncologists to provide further refinement for the items and to test for comprehensibility and acceptability. The consultants were, as for the interviews, a judgement sample (Oppenheim, 1992) chosen to represent the different demographic and job characteristics of consultants generally. The questionnaires were sent out with a covering letter explaining the background to the study, that there was concern about the stress experienced by doctors in their work and citing a report on this subject published by the British Medical Association (1992). The letter explained that the purpose of the study was to investigate aspects of work consultants' perceived as contributing to their job stress and satisfaction and asking each consultant if they would be willing to assist in the process by evaluating the instruments which were to be used for this. Consultants were sent the whole package of questionnaires, ie the standardised instruments which were to be used to measure mental health as well as those investigating sources of job stress and satisfaction. The consultants were asked to indicate which, if any, questions they found difficult to answer, annoying, confusing, upsetting or irrelevant and whether they thought there were any significant omissions. They were also asked to time completion of the package of questionnaires, in order that consultants in the main survey could be given an indication of how much time they would need to set aside.

One consultant did not return the questionnaire. The remaining seven consultants completed all questionnaires and made a number of comments regarding the items. Three sources of job stress which were very poorly endorsed (given a rating of zero by almost all consultants) were removed at this stage. These were items C2, "Being formally evaluated/appraised by your manager", about which there were numerous comments that it was irrelevant since this did not happen, and item C6, which had in fact been split into two items "Feeling regret about choosing your particular specialty" and "Feeling regret about going into medicine". One new item, "Feeling under pressure to meet deadlines", which was suggested very strongly by several of the consultants, was added to the questionnaire. Further minor changes were made to the wording of several of the items in response to the comments made. All of these final changes were agreed at a meeting of the study expert panel. This process resulted in the final questionnaire to assess job stress in consultants generally and oncologists specifically containing 34 items (see figure 6.1).

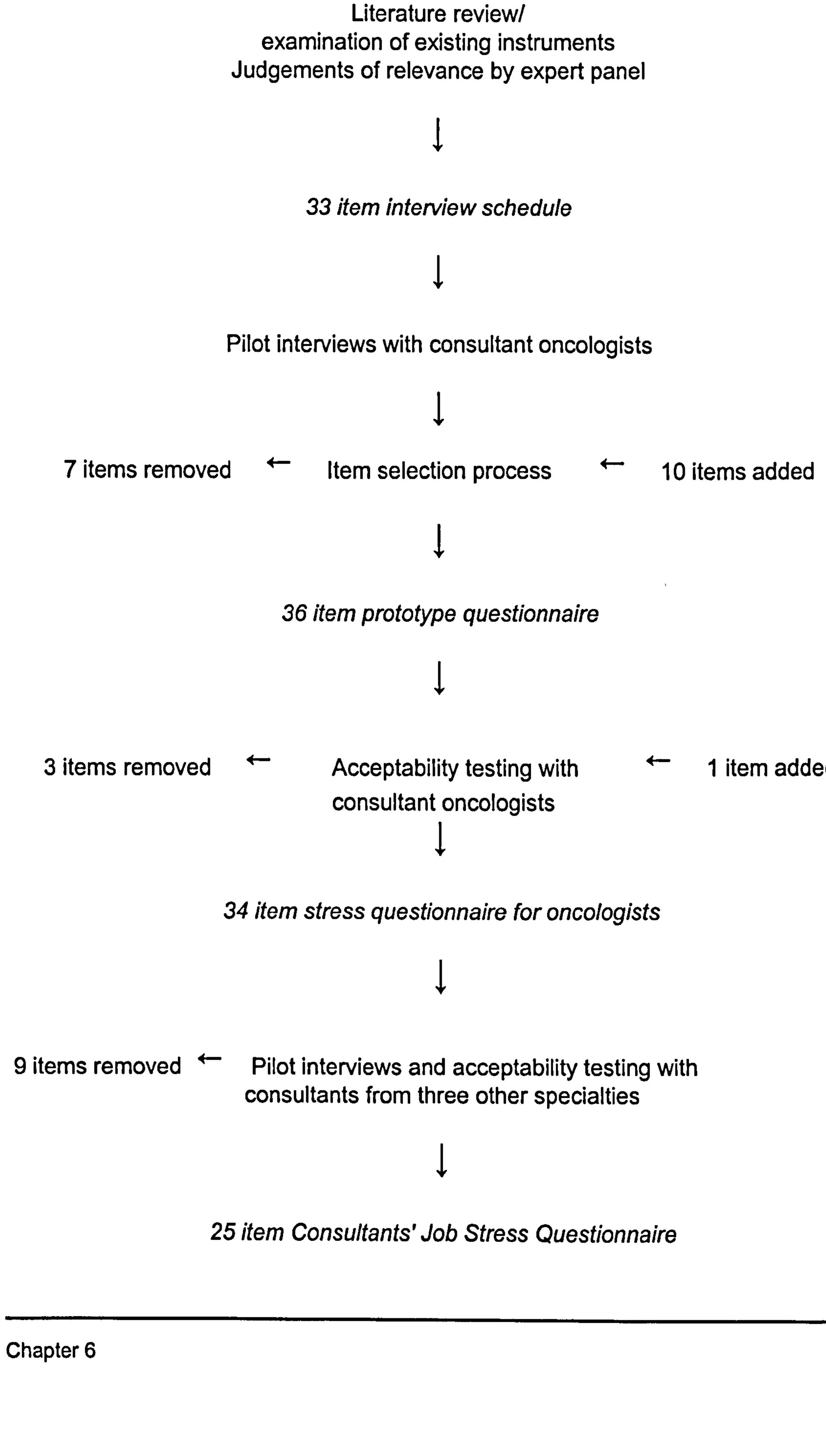
None of the consultants had any kind of difficulty answering the question asking for a global rating of job stress and no changes were made to this question.

6.2.3.2 Acceptability testing for surgeons, gastroenterologists and radiologists

Prototype versions of the questionnaires were sent to 13 surgeons, 12 gastroenterologists and 15 radiologists, of whom 7, 6, and 11 consultants respectively returned completed questionnaires. For surgeons and gastroenterologists, no significant problems were described with any of these items in terms of their being difficult to answer, annoying, confusing, upsetting or irrelevant. Therefore no changes were made to these items. Additional sources of stress were suggested strongly at this stage, three for surgeons, two for gastroenterologists, and seven for radiologists, but all were specialty-specific.

This process therefore resulted in the construction of a set of questionnaires enquiring about job stress among consultants from four specialties representing the diverse roles of UK hospital consultants. The questionnaire for each specialist group consisted of 25 core items representing sources of job stress relevant to consultants working in all four specialties, and modules of additional items relating to sources of stress specific to the role of the consultant in each specialism. The process for developing the core twenty-five items of the Consultants' Job Stress Questionnaire is shown in figure 6.1. The 25 core items relevant to all four specialties, on which the research in this thesis is based, are shown in appendix D.

Figure 6.1 - *Diagram representing the process of development of the Consultants' Job Stress Questionnaire*



6.3 Development of a questionnaire to measure sources of job satisfaction for hospital consultants

6.3.1 Literature review

As for the sources of stress, the first step in the development of the questionnaire was to identify from the literature previously reported sources of job satisfaction for doctors (see chapter 2). There has been far less research of job satisfaction than job stress among doctors and theory relating to job satisfaction is far less developed than is the case for job stress. From the literature a list of potential sources of job satisfaction for UK consultants was compiled. No review of the different domains of job satisfaction at work has been carried out and so no particular model was used in the compilation of this list.

Again, as a result of general observations and discussions with consultants, the review of the literature and a brainstorming session with the expert panel, 11 sources of job satisfaction were identified for consultants (table 6.2). The relatively small literature on job satisfaction, compared with that focusing on sources of stress at work, meant that this list was much shorter than that produced for consultants' job stress.

Table 6.2-*Eleven potential sources of satisfaction identified from the literature as relevant to UK consultants*

Source of job satisfaction
S1. Helping patients through curing cancer or controlling symptoms. S2. Relationships with patients. S3. Relationships with other staff members. S4. Being respected and held in esteem by colleagues. S5. The intellectual stimulation of the job, particularly research and teaching. S6. The level of autonomy in the job. S7. The amount of variety in the job. S8. The amount of responsibility you hold. S9. Being able to bring about positive change in the organisation. S10. Opportunities for personal learning (developing clinical/ research/ management skills). S11. Opportunities to contribute to the development of your profession

6.3.2 Interviews

Again, interviews were carried out with consultants from each of the four specialties being surveyed to investigate the relevance of the sources of job satisfaction to the experience of UK consultants currently in post and to identify any additional sources of job satisfaction

not previously identified in the literature.

6.3.2.1 Interviews with oncologists

At the same interviews as for the sources of job stress, the nine oncologists rated each source of satisfaction according to the extent it was experienced as such by them, on a scale from 0 (not at all) to 3 (a lot). The same procedures were used as for the sources of job stress and will not be repeated here (see section 6.2.2.1).

6.3.2.2 Item selection for oncologists

Calculation of the mean rating for each source of job satisfaction revealed that all 11 had a mean importance rating greater than one. This indicated that all 11 items were at least "a little" important as sources of job satisfaction and all were therefore retained in the questionnaire automatically. Two items, S1 and S5, were each split into two separate items since they referred to two separate aspects of work from which satisfaction could be derived.

Nine additional sources of job satisfaction were suggested by the oncologists, but these were given too low a rating by the core study expert panel members to be included, on the grounds that they were already covered by existing questionnaire items or were too specific to the individual consultant suggesting them. For example, two additional sources of satisfaction, "Travelling to academic meetings and conferences" and "Getting work published", were already covered by the item "Deriving intellectual stimulation from research". Also, the additional sources "Getting patients through against impossible odds" and "Resolving clinical problems others see as impossible" were each highly specific to an individual clinician.

As with the sources of stress, the wording of items was changed in the direction of encouraging personal involvement through using the present participle of the verb throughout. The prototype questionnaire containing 13 sources of job satisfaction was then sent to a further sample of oncologists for acceptability testing.

An item asking consultants to rate "Overall how satisfying do you find your work?" on a 5-point scale from 0 "not at all satisfying" to 4 "extremely satisfying" was also added. This was to enable a global assessment of the satisfaction each consultant experienced in his/her work to be made.

6.3.2.3 Interviews with surgeons, gastroenterologists and radiologists

The same 13 consultant surgeons, gastroenterologists and radiologists as were interviewed regarding their job stress also gave ratings regarding the importance of a list of potential sources of job satisfaction. The list which they evaluated consisted of the 20 sources of satisfaction developed with consultants working in oncology (see Section 6.3.3.1).

6.3.2.4 Item selection for surgeons, gastroenterologists and radiologists

As with the oncologists, the mean scores for all 20 of the potential sources of job satisfaction were calculated and those with a mean score of 1 or more were included in the questionnaire automatically, while those with a lower rating were rated on importance by the three members of the study expert panel. Three of the items which had been developed from the sample of oncologists were judged to be irrelevant to the work of one or more of the other three specialist groups and were removed from the core pool of items for the questionnaire.

Nineteen additional sources of job satisfaction were suggested by surgeons and gastroenterologists during the interviews, but these were judged by the core members of the expert panel to be either specialty specific or specific to the individual consultant. For example, "Being able to improve patient care without spending money, eg using your interpersonal skills to set things up or improve efficiency by modifying procedures" and "Involvement with the media - talking to the press about recent developments in gastroenterology". None of these was included in the questionnaire. No additional sources of satisfaction were suggested for the radiologists.

6.3.3 Acceptability testing

Along with the rest of the questionnaires to be used in the study, the questionnaire to measure sources of job satisfaction was sent out to samples of consultants from the four specialties in order to identify and resolve any problems consultants had with its completion. Procedures were as for the questionnaire to measure sources of job stress.

6.3.3.1 Acceptability testing for oncologists

The 13-item questionnaire developed from interviews with oncologists was then completed by a further sample of seven consultants working in oncology. No consultants reported any difficulties with items in terms of being difficult to answer, annoying, confusing, upsetting or irrelevant, although some omissions were noted. Seven additional sources of job satisfaction were suggested, each by at least two of the oncologists. All seven of these received a high relevance judgement by the core members of the study expert panel

and were added to the questionnaire, as follows:

"Feeling you have the staff necessary to do a good job"
"Feeling you manage death and dying well for patients"
"Feeling you have adequate financial resources to do a good job"
"Feeling you have a high level of job security"
"Feeling you have adequate facilities to do a good job"
"Feeling your clinical experience is used to the full in the job you do"
"Feeling you deal well with relatives".

The final questionnaire to assess sources of job satisfaction in oncologists therefore consisted of 20 items.

As with the item to measure a global rating of stress, the item to measure global job satisfaction was completed without any difficulties and remained in the questionnaire unchanged.

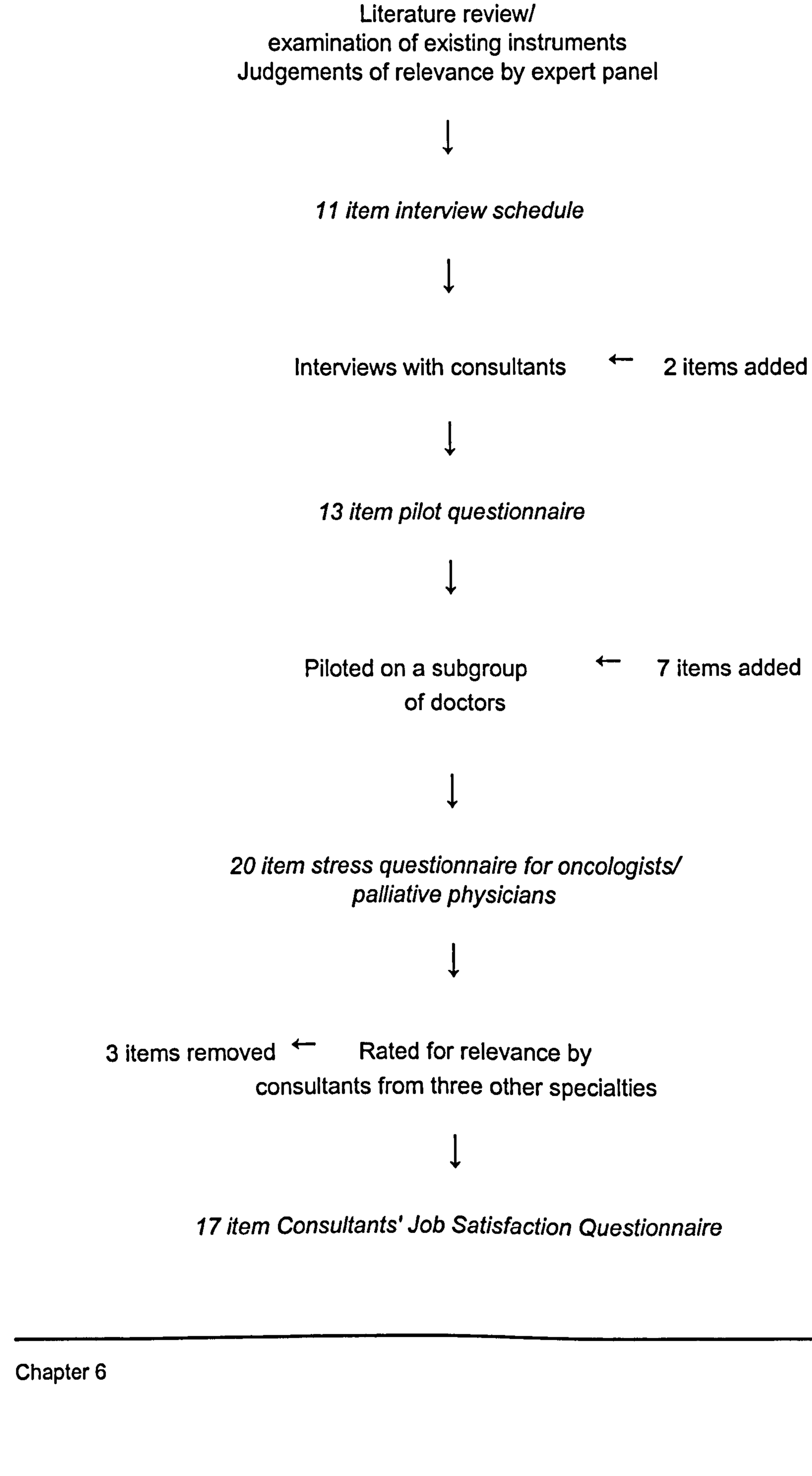
6.3.3.2 Acceptability testing for surgeons, gastroenterologists and radiologists

Prototype versions of the job satisfaction questionnaires were completed by seven surgeons, six gastroenterologists and 11 radiologists. No significant problems were described with any of these items were reported by the consultants in each of these specialty groups and all items were retained in the questionnaires unchanged.

Four additional sources of satisfaction were suggested by surgeons, but these were all given a low rating for inclusion in the questionnaire because they were all highly specific to the consultant suggesting them. Examples of these were "I...am involved in the running of a cancer support group and feel that has enhanced my life greatly" and "Changing perceptions regarding management". Two additional sources of satisfaction were suggested by gastroenterologists, which again were not added to the questionnaire on grounds of high specificity to the individual consultant. No additional sources of job satisfaction were suggested at all by the radiologists. The scant number of additional sources of job satisfaction suggested at this stage suggests all of the aspects of work which commonly contribute to consultants' job satisfaction had been covered by existing questionnaire items.

The process of developing the core questionnaire items to measure sources of job satisfaction in consultants in shown in figure 6.2. The questionnaire is shown in appendix E.

Figure 6.2-*Diagram representing the process of development of the Consultants' Job Satisfaction Questionnaire*



6.4 Summary

The procedures described in this chapter were carried out in order to develop questionnaires to assess sources of job stress and job satisfaction experienced currently by hospital consultants working in the UK. These instruments were developed utilising the experiences of consultants working in four specialties, chosen to represent a range of the different demands made of UK hospital consultants. A process of general observation and discussion with consultants in the course of their work, a review of the literature and a brainstorming session with the expert panel for the study identified a number of potential sources of job stress for UK hospital consultants. The relevance of these to the work of UK hospital consultants more broadly was assessed using in-depth interviews, which also identified additional sources of stress which had not emerged through the initial item-generation procedures. These items were used to construct questionnaires to assess sources of job stress and satisfaction. The prototype questionnaires were sent out to further samples of consultants from the four specialties being surveyed in order to identify and resolve any problems in the questionnaire design and administration. This process resulted in the development of the 25-item Consultants Job Stress Questionnaire, and the 17-item Consultants' Job Satisfaction Questionnaire. These highly specific instruments would be used in the main questionnaire survey to provide detailed information of the aspects of work which are experienced as contributing to job stress and satisfaction by hospital consultants in the UK currently, in a large national survey.

CHAPTER 7: Methodology for main questionnaire study

This cross-sectional questionnaire survey was carried out to assess current sources of job stress and satisfaction for UK hospital consultants, to assess the extent of psychiatric morbidity and burnout in UK in this occupational group and to enable investigation of the relationships between the mental health of UK hospital consultants and their reported job stress and satisfaction. Standardised questionnaires were used to measure burnout and psychiatric morbidity among this consultant group to enable comparison with other studies. Sources of job stress and satisfaction were investigated using the study-specific questionnaires designed in the preliminary work, in order to enable these to be explored in a high degree of detail.

7.1 Participants

One thousand one hundred and thirty-three consultants were asked to participate in this national questionnaire-based survey. The sample of consultants consisted of those working in the same four specialties as were chosen for the preliminary work. Where possible, the entire population of consultants in a particular specialty was surveyed, because this would allow the strongest conclusions to be drawn about that population. Where numbers of consultants in a specialty were so large as to make surveying the entire population impractical within the time and resource limitations of the study a sample of the group was selected. This sample was chosen by allocating each consultant in the population a number and using a computer-generated random numbers program (Inc, 1990) to select from the population. The size of the sample selected was set at 250-300 in order to keep groups to a practical size, while ensuring sufficient numbers for the analysis planned. The analysis which would require the largest numbers was a multiple regression to investigate predictors of burnout and psychiatric morbidity among demographic and job stress and satisfaction variables, and even if only 50% of consultants replied, which was a conservative estimate, numbers would be sufficient for there to be more than 20 participants per independent variable, a rule of thumb for adequacy of sample size.

Consultants who had been involved in either the interviews to develop the questionnaires or acceptability testing were excluded from the main survey because their having completed the questionnaires the first time would be likely to influence their completion the second time. Although many of the questionnaire items were the same in the acceptability testing phase to those used in the main survey, the data collected at that time could not be used in the main survey, because the consultants had been asked to complete the questions on a different basis, ie evaluating the comprehensibility of the items.

The participants were as follows:

1 All British clinical and medical oncologists, ascertained through the Royal College of Radiology and the Royal College of Physicians (N = 322). Clinical oncologists (also sometimes known as radiotherapists) are cancer specialists who treat patients using radiotherapy and chemotherapy. Medical oncologists are cancer specialists who have particular expertise in the use of chemotherapy.

2 A one in five random sample of clinical radiologists ascertained through the Royal College of Radiology (N = 260). Clinical radiologists diagnose a diverse range of diseases using imaging techniques. They are also involved to an increasing extent in interventional procedures using, for example, endoscopy.

3 A two in three random sample of gastroenterologists who were members of the British Society of Gastroenterology (N = 299). Gastroenterologists are one of the major specialties, performing the role of general physician, as well as diagnosing and treating patients with gastrointestinal complaints.

4 All surgeons who were members of the British Association of Surgical Oncology (N = 252). Surgeons are another of the major frontline specialties involved in the diagnosis and treatment of disease. The particular group of surgeons chosen were those who had an interest in surgery for cancer.

In the case of each specialty group access was gained by contacting the relevant Royal College or Specialty Association by letter, followed up by meeting a senior member of the organisation in person. These meetings were important because it was necessary to convince each senior consultant that the study was sufficiently important for access to be given to the names and addresses of consultant members. The approach taken to bring this about was to describe first the importance of the data which would be obtained from the study in terms of assessing consultants' mental health and the implications of this for their own suffering and their care of patients, second the scientific rigour with which the study would be carried out and third the measures taken to ensure the confidentiality of the data collected. Although, as has been mentioned, UK consultants had not been subject to scrutiny in this area before, in all cases the senior consultant agreed to give access for the study. After obtaining verification of his decision with the College or specialty association, the senior consultant then facilitated contact with an administrative member from whom the names and addresses of the consultant members of the college could be obtained. Some of the Colleges or associations were not willing to hand over

lists of their consultants' details to someone outside of the College/association, in which case the randomisation and despatch of questionnaires for the study was carried out on their premises.

7.2 The questionnaires

1 Psychiatric morbidity using the 12-item version of the General Health Questionnaire (GHQ-12) (appendix F). This is a widely accepted and reliable method of screening for psychiatric morbidity in community samples and occupational settings involving large numbers of people (Goldberg & Williams, 1988; Banks *et al.*, 1980). The 12-item version of this questionnaire was chosen over its longer counterparts on the grounds of brevity, since consultants in this study were to be asked to provide a great deal of information. The 12-item version of the GHQ demonstrates as high reliability and validity as the longer versions (Goldberg & Williams, 1988). Twelve symptoms of psychiatric morbidity (for example, depression, loss of confidence, sleep disturbance) are rated on a one to four scale, according to whether they have been experienced "not at all", "the same as usual", "rather more than usual" or "much more than usual" in the past few weeks.

As described in chapter 3, this questionnaire can be analysed using a cut-off score, where individuals scoring above the cut-off are estimated to have a level of psychiatric morbidity likely to benefit from clinical intervention. When analysed in this way, scores are simplified to 0 (not at all / the same as usual) or 1 (rather / much more than usual), giving a maximum score of 12. Ideally, when the GHQ is being used on a new population a validation study should be carried out in order to identify systematically the most accurate cut-off score to use. The most accurate cut-off score should be identified by calculating the sensitivity and specificity of different cut-off scores on a sample of the population against standard clinical interviews. In the current study there were a number of practical reasons why it was not possible to carry out psychiatric assessment of the consultant doctors, such as would be necessary to confirm the best GHQ-12 threshold for this population. As well as time and financial constraints, it was perceived that consultant doctors were likely to be unwilling to submit to face-to-face psychiatric assessment for research purposes.

In such a situation the GHQ User's Guide suggests identifying a study which has already been carried out on a similar population and taking the threshold used in that study. At the time of selecting the threshold no studies had been carried out using the GHQ on UK hospital consultants. The closest populations to have been

studied using the instrument were medical students and junior doctors (Firth, 1986; Firth-Cozens, 1987), where a cut-off score of 3\4 was used. This threshold was described by Firth (Firth, 1986) as "conservative" and in view of this being the first study of psychiatric morbidity among medical consultants a conservative threshold was seen as a sensible choice here. Table 3.1 in chapter 3, which shows validity studies for the GHQ-12, indicates that two studies found a cut-off score of 3\4 maximised the sensitivity and specificity of the instrument in identifying psychiatric morbidity compared with a clinical psychiatric interview. A lower threshold has more commonly been found in other studies to maximise sensitivity and specificity (three studies found 2\3 and two studies found 1\2), but these latter studies were on quite different populations, either in constitution (for example, primary care attenders) or nationality.

2 Burnout using the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986) (appendix G). This measures the three aspects of the burnout syndrome on separate subscales. Emotional exhaustion - feeling emotionally over extended by work - is measured by nine items, for example, "I feel emotionally drained from my work". Depersonalisation - an unfeeling and impersonal response towards people - is measured by five items, for example, "I have become more callous towards people since I took this job". Personal accomplishment - feelings of competence and achievement at work - is measured by eight items, for example, "I have accomplished many worthwhile things in this job". Each job-related feeling/attitude is rated on a 7 point scale according to how often it is experienced, from "never" to "every day". The total score for each subscale is categorised "low", "average" or "high" according to predetermined cut off scores based on normative data from a sample of American health professionals (Maslach & Jackson, 1986). Scores are considered high if they are in the upper third of the normative distribution, average if they are in the middle third and low if they are in the lower third. Burnout is indicated by high scores on the emotional exhaustion and depersonalisation subscales and low scores on the personal accomplishment subscale.

3 Job stress and job satisfaction using questionnaires designed specifically for the study (see Appendices 6A and 6B). This was in order to identify with as great a degree of accuracy as possible the specific aspects of consultants work perceived by them as contributing to their job stress and satisfaction. Full details of the content and development of the questionnaires was given in chapter 6. In brief, the stress questionnaire contains 25 potentially stressful aspects of consultants' work. Consultants rate each one according to the extent to which it has contributed to the overall stress they have experienced in their work in the last few months on a scale of 0 "not at all" to 3 "a lot". The satisfaction questionnaire contains 17

potentially satisfying aspects of consultants' work each of which is rated on a the same 0 to 3 scale according to the extent to which it has contributed to overall job satisfaction. Global ratings of stress and satisfaction were obtained by asking clinicians "overall how stressful/satisfying do you find your work?", rated on scales of 0 to 4 ("not at all" to "extremely"). Aspects of work perceived as stressful and satisfying were derived from a review of the occupational stress literature and from interviews with a number of clinicians working in each specialty. Items were selected for inclusion in the final questionnaire according to pre-determined decision rules. The resulting questionnaire was then piloted on a small subset of clinicians from each specialty who were subsequently excluded from the main survey.

4 Background information. This instrument asked consultants for details of sociodemographic and job characteristics (appendix H). These items were designed specifically for this study and particular characteristics enquired about were those which had been identified in the literature possible having a relationship with doctors' stress (see chapter 4). Sociodemographic factors included gender, age band, and marital status. Job-related factors included type of post held, number of years as a consultant, full-time vs part-time working, and extent of private work. Consultants were also asked whether or not they perceived they had received sufficient training in various aspects of their work. Gastroenterologists, surgeons and oncologists were asked whether they perceived they had received sufficient training in the treatment of disease and in symptom control. Radiologists, as a clinical support service, treat patients far less frequently and were therefore asked instead whether they felt they had received adequate training in general and specialised radiology. All four consultant groups were asked whether they perceived they had received sufficient training in communication skills and management skills.

7.3 Procedure

The booklet of questionnaires was sent out to consultants between May 1993 and May 1994. From the review of the literature described in chapters 2 to 4, it appeared that for most, if not all, consultants this would be the first occasion on which they had been asked to complete a questionnaire concerning the sources of job stress and satisfaction and more particularly their mental health. Resultant concerns about a potentially low response rate meant that every effort was made to encourage consultants to respond through persuading them of the importance of the study in terms of its implications for their working lives and of the systematic manner in which it was being carried out. To this end a number of steps were taken (Oppenheim, 1992).

1 Confidentiality. The survey was confidential, with each clinician being assigned a code number which was used for remailing purposes only. The key to the code for each specialty was held by a responsible person not involved with the study. In the case of the surgeons, this was the administrator of the British Association of Surgical Oncologists, for the gastroenterologists this was an administrator at the Imperial Cancer Research Fund, while the key to the code for the oncologists and radiologists was held by a retired ex-member of the Cancer Research Campaign staff. These arrangements meant the author was blind to the identity of consultants returning questionnaires and consultants were informed of this in the preamble to the questionnaire and in the covering letter.

2 Comprehension of the purpose of the study. Each questionnaire was sent out with a covering letter signed by myself and other members of the expert panel relevant to each specialty. This explained the background to and purpose of the study, estimated the time the questionnaire would take to complete, emphasised the confidential nature of any data collected and promised a summary of findings would be sent to all responders in advance of publication of any data.

3 Support of the study from the relevant professional organisation. Each questionnaire was also accompanied by a signed statement of support from the relevant Royal College or specialty association, stating that the organisation perceived that the study was worthwhile, pointing out the necessity of a high response rate for the success of the study and stating that the organisation would be grateful for its' members cooperation. Obtaining this involved corresponding with the senior member of the Royal College or specialty association who had agreed to the study, explaining the purpose and necessity for a statement of support and asking them if they (and in some cases another senior member of the organisation) would be willing to sign it. For oncologists this statement was signed by Dr Jill Bullimore, Dean of the Faculty of Clinical Oncology at the Royal College of Radiologists and Professor Michael Whitehouse, Chairman of the Standing Committee of Medical Oncology at the Royal College of Physicians. For the radiologists it was signed by Professor Stuart Field, Dean of the Faculty of Clinical Radiology at the Royal College of Radiologists. Professor Jack Hardcastle and Mr Tim Allen-Mersh, respectively President and Vice-President of the British Association of Surgical Oncology signed the statement to accompany the questionnaires sent to surgeons and Professor Monty Losowsky and Professor Michael Farthing, President and Secretary of the British Society of Gastroenterology signed the statement for gastroenterologists.

4 Design of the questionnaire. The layout of the questionnaire was organised so that the questions concerning sources of job stress and satisfaction were presented at the beginning of the questionnaire, in order to engage consultants' interest.

5 Timing. Questionnaires were sent out where possible to consultants' home address and were timed where possible to arrive the Friday before a bank holiday, to maximise the likelihood that consultants would have time to complete them.

6 Encouragement of non-responders. Consultants who did not return the first questionnaire were sent a second questionnaire together with a reminder letter one month after the initial mailing. The letter reiterated the importance of a high response rate in ensuring that the results of the survey were representative of the experience of stress among consultants in the specialty in question.

All of these measures were designed to bring about as high a response rate as possible for the study, amongst this particular group who were not accustomed to receiving questionnaires concerning personal matters and who may be resistant to the idea that consultants may suffer psychological distress as a result of their work.

7.4 Statistical methods

Principal components analysis

Chapter 8 describes principal components analysis of the consultants' ratings of the 25 sources of stress and 17 sources of satisfaction in the Consultants' Job Stress and Satisfaction Questionnaires. Principal components analysis and factor analysis are techniques commonly used in the development of psychometric tests to progress from the initial pool of items generated as theoretically relevant to the issue being measured to a more coherent set of items which correlate in one or more factors. Principal components analysis rather than factor analysis is usually used for initial exploration of the factor structure of the data, as is the case here. The usual process of principal components analysis is the production of a correlation matrix, extraction of factors, selection of the appropriate number of factors, rotation of the factors to increase interpretability and labelling of each factor according to the meaning of the items which load on to it. There is a degree of subjectivity in this process, in that while there are statistical issues which can be used for guidance these are not absolute and may be contradictory. Different researchers may produce different solutions from the same data, though where the data produce a "good" solution, ie where the variables which load on to each factor are highly correlated with that factor but not with any of the other factors, there is likely to be far less

variability of interpretation than when variables load quite highly on to more than one factor.

Examination of the correlation matrix is useful as a means of evaluating the factorability of the data. Numerous positive correlations between the variables suggests they may constitute one or more factors, representing underlying processes which have caused the variables to be correlated. There should also be several correlations of a reasonable magnitude, greater than .30, for the matrix to be judged factorable (Tabachnick & Fidell, 1989). While correlations between pairs of variables provide an indication of the factorability of the data, an overall test of the significance of the correlations can also be examined, in the form of the Kaiser-Meyer-Olkin measure of sampling adequacy. Values approaching 1 indicate that partial correlations are small and that the matrix is factorable, and values above .6 are required for good factor analysis (Tabachnick & Fidell, 1989).

There are two main criteria used to determine the number of factors to retain. The first is Kaiser's criterion, by which factors with eigenvalues (giving a representation of the amount of variance accounted for) of greater than 1 are retained. The other is the scree test (Cattell, 1966) in which eigenvalues are plotted in descending order of magnitude. The eigenvalue for the first factor will be the largest and those for successive factors will decrease, being very low for the final few factors. Often there is a point in the plot where the gradient changes from being steep to shallow, forming an elbow in the data. The number of factors which fall on the steep line suggests the number which should be retained. These two criteria can be contradictory and a degree of judgement may be required, taking into account other information, such as the number of items which load on to the lower factors.

After factors are extracted, they are usually rotated to increase interpretability. There are two main types of rotation: orthogonal (varimax is the most commonly used) and oblique (oblimin). In orthogonal rotation the factors are uncorrelated and the aim is to maximise the spread in loadings - items with a high loading become higher, while those whose loading is low become lower. Compared with oblique rotation, orthogonal rotation will tend to produce factors which are relatively easier to interpret. In oblique rotation the factors may be correlated, which may be a more accurate reflection of reality, but this technique can produce factors which are more difficult to interpret. The different methods of rotation will in fact be likely to give very similar factor loadings if the pattern of correlations between the variables is fairly clear.

In principal components analysis, multivariate outliers (for example, a consultant who is quite young, but who indicates he/she has been in a consultant post for 10 years) can

distort the results. It is therefore useful in an analysis such as this to identify any multivariate outliers and exclude them from the analysis. The data here, comprising scores from 0-3, are limited in scale, hence there will not be any extreme multivariate outliers. Nevertheless, in order to ensure the analysis was not being adversely affected, multivariate outliers were identified through calculation of Mahalanobis' distance. This calculates the distance from each data point to the mean across all variables at once, from which it calculates an overall distance, which indicates whether a particular case is an outlier taken in the context of scores on all variables. Participants for whom the Mahalanobis' distance is high can be excluded and the results examined for differences. If exclusion of participants identified in this way makes no difference to the overall analysis, the analysis can continue without the need for their exclusion.

Factor and composite scores

Once factors have been identified, factor scores can be calculated, to provide an estimate of the scores participants would have on the factor if it had been measured directly. These scores can be useful where principal components analysis has been used to reduce a large number of independent variables, in the form here of sources of job stress and satisfaction, into a smaller number of factors. These factors can then be used to predict a dependent variable, here consultants' poor mental health, using multiple regression. A number of methods, ranging from the simple to the highly complex, can be used to generate factor scores, but simple methods are usually adequate for research purposes. Here factor scores were calculated as the sum of each consultants' scores on the items which load on each factor. Since there were differences in the number of items loading on to the factors, the sum was divided by the number of items in each factor, in order to standardise scores across factors. One-way ANOVA using mean factor scores was used to investigate differences in the extent to which consultants from the four specialties rated the stress and satisfaction factors as contributing to their overall job stress and satisfaction. Where differences across mean scores were identified, post-hoc tests involving pairwise multiple comparisons of scores for the four specialist groups (using the least significant difference method) were used to explore differences in detail. Factor scores were also calculated in an alternative way, as the percentage of responses in each factor rated by consultants as contributing "quite a bit" or "a lot" to their overall job stress and satisfaction. The reason for this was that the percentages give a more immediate idea visually of how the items in the factor have been rated than the mean score.

Total scores for each consultant across all stress and all the satisfaction items was also calculated, to provide composite scores for the job stress and job satisfaction they were reporting. These composite scores, alongside consultants' more subjective global ratings

of overall how stressful and satisfying they had found their work in the last few months, would be used subsequently as independent variables in predicting consultants' mental health.

Univariate analyses

In chapter 9, differences in consultants' response rates, demographic and job characteristics and prevalence of psychiatric morbidity (measured by the GHQ-12) and burnout (measured by the MBI) were assessed using the chi-squared (χ^2) test. Yates' correction was used for 2x2 comparisons. Pearson's correlations were used to examine associations between psychiatric morbidity and the three dimensions of burnout, with cross-tabulations used to explore how many consultants reporting psychiatric morbidity also had high emotional exhaustion, high depersonalisation and low personal accomplishment.

Univariate analysis of associations between job stress and satisfaction and consultants' job/demographic characteristics were undertaken using linear models. Regression was used where predictor variables were continuous (for example, consultants' ratings of job stress). Where predictor data were categorical, with more than two categories (for example, specialty) one-way ANOVA was used, and for categorical data with two sub-groups (for example, gender), independent sample t-tests were carried out. Regression assumes data are interval and relationships are linear, but the technique is robust and is widely used when data do not meet these criteria. Since the technique is robust, the important factor to establish is that the data are not skewed. Examination of normal Q-Q plots and histograms of the data for the dependent variables indicated the distributions of these data were approximately normal.

Multivariate analyses

Having established which of these variables had associations with mental health univariately, multivariate analyses were then undertaken to examine the relative importance of each of these. These analyses used multiple regression, a group of techniques which enable the investigation of relationships between several independent variables and one dependent variable. Multiple regression techniques identify the unique, independent relationship of one independent variable with the dependent variable, in the context of other independent variables.

Differences in the techniques relate to the manner in which independent variables are entered into the regression equation. In standard multiple regression, all independent variables are entered into the equation at the same time, and the analysis shows the

unique variance in the dependent variable explained by each independent variable alone. In statistical regression the entry or exclusion of variables from the regression equation is based on statistical criteria only, and no account is taken of the meaning of the variables. Hierarchical multiple regression involves entering the independent variables, either separately or in blocks, in an order pre-determined by the researcher based on hypotheses about different variables or in order to answer specific questions. One use of this technique can be to enter variables hypothesised to be of lesser importance first, and then to examine what the variables conceptualised as important or more major add on top of these. This approach was taken in the current analyses, with consultants' job/demographic characteristics entered in a first block and their ratings of job stress and satisfaction entered in a second block, in order to determine how stress and satisfaction add to the prediction of consultants' mental health over job/demographic variables.

Language indicating the existence of causal relationships is often used to describe the results of regression analyses. Causal relationships between variables can only be demonstrated with certainty by showing that experimental manipulation of one variable is followed without fail by change in another. Where this is not possible, particularly in the case of research based in applied settings in which the experimental manipulation of variables is not possible, the demonstration of causality must be derived from theory and logic. In these circumstances, language implying causality can still be used, but must be used with a clear qualification.

Separate analyses were carried out to investigate relationships of job stress and satisfaction with psychiatric morbidity and each of the three dimensions of burnout. Consultants' total scores on the GHQ-12 and each of the three burnout subscales were used as the dependent variables in these analyses. The distributions of scores on these scales were approximately normal. Separate analyses were carried out for global and composite ratings of job stress and satisfaction on the grounds that these scales were both assessments of consultants' stress and satisfaction. Because the regression coefficient for each variable depends on the unit of measurement of that variable and because the units of the variables being compared were diverse (for example age: 1-4; composite job stress: 0-54) standardised regression coefficients (beta weights) were examined to assess the relative importance of each variable. Standardisation is carried out by multiplying each regression coefficient by the standard deviation of the relevant variable and dividing by the standard deviation of the dependent variable (the measures of mental health). Only those job/demographic variables previously identified as having a significant relationship with each burnout dimension and psychiatric morbidity in univariate analysis were entered into each regression respectively.

In chapter 10, the relationships between consultants ratings of job stress and measures of their mental health were examined in more detail using a graphical approach. This would enable examination of separate plots for consultants with different levels of job satisfaction, in order to investigate the potential buffering effect of job satisfaction on the relationship between job stress and mental health. If a buffering effect was occurring, the relationship between the amount of stress consultants were experiencing and their mental health would be found to exist more strongly among consultants who were experiencing low levels of job satisfaction than for those whose levels of satisfaction from their work were high (Cohen & Ashby Wills, 1985). Linear regression analysis was used to examine whether the interactive effect of job satisfaction influenced mental health. An interaction term was calculated by multiplying global stress score and global satisfaction score. Job stress and satisfaction were entered in a first block, and their interactive effect in a second block, in order to examine whether the interaction had an effect in addition to the linear effects of job stress and satisfaction alone.

For the composite ratings of job stress and satisfaction the data were subjected to smoothing before the graphs were plotted to illustrate the relationships better in what is noisy data. Kernel smoothing was used here (Stata, version 8.0) (StataCorp, 1997), which calculates a point to be plotted based on the data points around it. The new values are calculated for each data point by running a regression of job stress/satisfaction score on burnout/psychiatric morbidity score using the specific data plus the data around that point. The amount of data around each point to be included in the calculation is specified by the bandwidth, with, for example, a bandwidth of 0.5 using 50% of the data in smoothing each point. The lower the bandwidth the more closely the smoothing will follow the raw data and it is usual to experiment with different bandwidths in order to achieve a good balance between the amount of smoothing and the accuracy with which the data are represented. For this analysis a bandwidth of 0.2 was selected, in order to follow the raw data closely while still providing an acceptable degree of smoothing. Smoothing can be used as a technique for the prediction of the relationship between two variables. Here it was used only to assist in plotting the data.

An exploratory model of the relationships between job stress and satisfaction and the mental health indicators was developed and tested using linear regression. The model of stress tested in this analysis was based on the most widely accepted interactional model, as discussed in chapter 2, whereby sources of stress at work lead to outcomes in the form of poor mental health (Cooper & Marshall, 1976; Cooper, 1983). Further, pervasive poor mental health in the form of psychiatric morbidity was hypothesised as occurring subsequent to job-specific poor mental health in the form of burnout (Leiter & Durup, 1994; Meier, 1984). Composite scores for job stress and satisfaction were used in

preference to consultants' global ratings of these, since they are more objectively grounded in the organisational environment, and therefore less likely to produce trivial associations through overlap in the content of the mental health measures (Frese & Zapf, 1988). For the mental health indicators, consultants total scores on each of the burnout scales of the MBI and total GHQ scores were used. Four separate regressions were carried out, one for each of the mental health indicators, with each of the variables hypothesised to be predictors inserted. Lines shown in the model represent those where significant associations were found. Standardised beta weights indicate the size and direction of the relationships.

CHAPTER 8: Consultants' job stress and satisfaction

8.1 Response rate

Eight hundred and eighty-two out of 1133 (78%) consultants returned their questionnaires, which is a high response rate for a postal questionnaire study of a national sample. The response rate after the first mailing was 67%, demonstrating the value of sending out the questionnaire a second time to non-responders, along with a reminder letter. The response rate by specialty was 241/299 (81%) for gastroenterologists, 161/252 (64%) for surgeons, 214/260 (82%) for radiologists and 266/322 (83%) for oncologists. The response rate for surgeons was significantly lower than that for consultants from the other specialties as a whole (χ^2_1 with Yates' correction = 35.6, $p<0.001$). The implication of this is that the sample of surgeons in this study is less representative of surgeons in general than is the case for the other specialty groups surveyed. It was not possible to investigate the representativeness of the samples with regard to demographic and other factors since these data were not available from the Royal Colleges or specialty organisations.

8.2 Sources of stress

Initial work involved examination of the ratings given by consultants to the 25 sources of job stress in the questionnaire. Table 8.1 shows consultants' ratings of the extent to which each of the 25 aspects of work had contributed to their overall job stress in the past few months. Ratings were made on a scale of 0 "not at all", 1 "a little", 2 "quite a bit", 3 "a lot". Ratings are shown as the percentage of consultants scoring each item as 2 or 3, ie judging the item as contributing "quite a bit" or "a lot" to their overall job stress (% endorsement) and also as mean scores. Raw scores are shown in appendix J.

The aspect of work rated by consultants as contributing the most to their job stress was having an excessive workload, which was endorsed by 75% of consultants. In fact, the top four most highly rated sources of stress related to work overload, the other three concerning having to deal with conflicting time demands, having to spend long hours at work and pressure to meet deadlines.

Table 8.1-*Consultants' responses to the Consultants Job Stress Questionnaire (% endorsing each item as contributing "quite a bit" or "a lot" to job stress, and mean score); preamble: "To what extent have the following factors contributed to the stress you have experienced in your job in the past few months?"; N for each item ranges from 878 to 882*

Source of stress	*Endorsement %*	*Mean score*
Having too great an overall volume of work	75	2.10
Having conflicting demands on your time	70	2.00
Disruption of your home life through spending long hours at work	56	1.67
Feeling under pressure to meet deadlines	56	1.64
Having inadequate staff to do your job properly	55	1.65
Having inadequate facilities (eg equipment/space) to do your job properly	49	1.51
Having to take on more managerial responsibilities	46	1.43
Having a conflict of responsibilities (eg clinical vs managerial; clinical vs research)	46	1.43
Feeling you have insufficient input into the management of your unit/institution	45	1.38
Keeping up to date with current clinical and research practices	43	1.38
Disruption of your home life as a result of taking paperwork home with you	42	1.36
Uncertainty over the future funding of your unit/institution	38	1.26
Being responsible for the quality of the work of other staff	36	1.27
Having to deal with distressed, angry or blaming relatives	35	1.24
Feeling that your accumulated skills and expertise are not being put to their best use	30	1.02
Encountering difficulties in relationships with managers	29	1.06
Disruption of your home life as a result of being on-call	26	1.08
Being involved with the emotional distress of patients	25	1.08
Encountering difficulties in relationships with consultant colleagues	25	0.94
Being involved with the physical suffering of patients	24	1.06
Dealing with the threat of being sued for malpractice	19	0.83
Feeling you are poorly paid for the job you do	15	0.62
Being responsible for the welfare of other staff	14	0.76
Encountering difficulties in relationships with junior medical staff	14	0.71
Encountering difficulties in relationships with administrative staff, eg secretaries	12	0.63

Having inadequate staff and facilities to do a good job were sources of stress also rated highly by consultants, alongside their increasing managerial responsibilities. Relative to other aspects of work, consultants reported experiencing low levels of stress from their interactions with patients, specifically dealing with patients' emotional distress and physical suffering, while their relationships with junior doctors and administrative staff contributed the least of the aspects of work covered here to their overall job stress.

8.2.1 Principal components analysis of sources of stress

In order to examine whether the sources of stress aggregated into one or more stress "factors", representing more general underlying sources of stress, these data were subjected to principal components analysis. The first step of this process involved examining the correlations between the 25 sources of stress (appendix K). Positive associations between the sources of stress would suggest these may constitute one or more factors, representing underlying processes which have caused the items to be correlated. Examination of the correlations indicated that there was a significant positive relationship between all but a very few of the sources of stress. All sources of stress correlated significantly ($p<0.01$) with at least some of the others and all were therefore retained in the analysis. There were a number of correlations greater than 0.30, a further indication that the matrix is factorable. The overall Kaiser-Meyer-Olkin measure of sampling adequacy was 0.87. Values approaching 1 indicate that partial correlations are small and that the matrix is factorable. The measure was well above the .6 required for good factor analysis.

Factor analysis techniques, which are based on correlation, are very sensitive to distortions caused by missing data. Therefore before this analysis was carried out an evaluation of the extent of missing data was undertaken. There were only 41 missing data points: 23 consultants had failed to score 1 item, 5 had failed to score 2 items and 2 had failed to score 4 items, leaving 852/882 consultants with full data sets. Missing data were widely spread across the sources of stress, being present for 19 of the 25 items. The highest number of missing responses on a single item was 5. With the quantity of missing data being so small, a check on whether the missing data were random was not necessary because whether random or not, it would not affect the analysis. In studies where only a few data points are missing in a random pattern from a large data set, the different procedures for dealing with them (estimation or deletion) are likely to produce similar results (Tabachnick & Fidell, 1989). Because the missing data were spread widely across cases, deletion would result in the loss of 30 cases, each missing only a small amount of data. However, Kromrey and Hines (1994) have demonstrated that deletion techniques are more accurate than substitution techniques for non-randomly missing data. In addition, mean substitution was not judged to be appropriate in this case because the data were going to be subject to principal components analysis and mean substitution reduces the variance of variables (the mean value being likely to be closer to the mean

than the missing value) (Tabachnick & Fidell, 1989). Listwise deletion of all cases with missing data were therefore carried out, leaving 852 consultants with full data sets in the analysis.

As well as identifying underlying sources of stress, this analysis would also show whether there were any items which were not serving any useful function in the scale because they were not clear enough or already covered by another item. Initial examination revealed that all 25 items loaded at >0.30 onto a general job stress factor, which explained 25% of the variance. This indicated that if a consultant rated one source of stress as contributing a lot to his or her overall job stress he or she was likely to rate others as doing so as well.

8.2.2 Stress factors

The initial analysis produced a solution with seven factors with eigenvalues greater than one, explaining 59% of the variance. A scree test of these data suggested three or four factors (appendix L). Further refinement of the solution was carried out, taking account of item response characteristics. Items which did not load very highly onto any one factor or which had a moderate loading on more than one factor were removed from the analysis. However, a degree of flexibility was used in that items which had a high endorsement rate and which loaded on factors which otherwise would have had only a few items loading on them were retained (Agius *et al.*, 1996). Factors five, six and seven had only a very small number of items loading on to them and the four factor solution indicated by the scree test was used.

The solution presented is a principal components analysis with varimax rotation of 18 of the 25 stress items. All 18 items loaded at a minimum of .31 on a first unrotated factor which accounted for 26% of the variance. The items and their loadings on four rotated factors, which together explain 53% of the variance, are shown in table 8.2. Only two items had a loading >0.40 on more than one factor, which indicates that most of the items were specific to the main factor on which they loaded.

Table 8.2-*Loadings of Consultants' Job Stress Questionnaire items on four stress factors; Varimax rotation; N=852*

Questionnaire items	Factor 1 loading	Factor 2 loading	Factor 3 loading	Factor 4 loading
Factor 1. Feeling overloaded and its effect on home life (24.9% variance)				
Item 4 Disruption of your home life through spending long hours at work	**.77**	.13	.13	.02
Item 10 Feeling under pressure to meet deadlines	**.55**	.08	.04	.44
Item 14 Having too great an overall volume of work	**.74**	.14	.04	.13
Item 17 Having conflicting demands on your time..	**.69**	.09	.12	.29
Item 20 Disruption of your home life as a result of taking paperwork home	**.81**	.09	.11	.03
Factor 2. Feeling poorly managed and resourced (8.5% variance)				
Item 3 Feeling you have insufficient input into the management of your unit/institution	.04	**.72**	.06	.09
Item 5 Having inadequate facilities (eg equipment, space) to do your job properly	.20	**.60**	.14	.03
Item 15 Feeling you are poorly paid for the job you do	.14	**.55**	.02	.01
Item 16 Encountering difficulties in relationships with managers	.01	**.68**	.02	.27
Item 21 Feeling your accumulated skills and experience are not being put to their best use	.13	**.68**	.02	.14
Factor 3. Dealing with patients' suffering (7.6% variance)				
Item 1 Being involved with the physical suffering of patients	.04	.04	**.73**	.19
Item 6 Having to deal with distressed, angry or blaming relatives	.18	.04	**.72**	.02
Item 12 Being involved with the emotional distress of patients	.05	.06	**.77**	.21
Item 19 Dealing with the threat of being sued for malpractice	.16	.16	**.64**	.05
Factor 4. Having managerial responsibilities (5.6% variance)				
Item 8 Having to take on more managerial responsibilities	.41	.02	.02	**.59**
Item 9 Encountering difficulties with consultant colleagues	.07	.26	.01	**.62**
Item 11 Being responsible for the quality of the work of other staff	.34	.04	.29	**.58**
Item 25 Being responsible for the welfare of other staff	.16	.11	.17	**.67**

An oblimin rotation was examined and this produced exactly the same pattern of items loading on factors, which attests to the robustness of the solution (appendix M). However, the correlations between the factors were quite low (appendix N), ranging from 0.12 to -0.25, which indicated there was probably insufficient overlap in variance among the factors to warrant oblique rotation, so the orthogonal version was used. In addition, because the stress factors were to be used subsequently as independent variables to predict consultants' psychiatric morbidity and burnout, orthogonal rotation was preferable.

According to statistical practice, for an analysis such as this multivariate outliers should be identified and excluded because they may distort the results. However with a high sample size and such a robust Kaiser-Meyer-Olkin measure outliers were very unlikely to have any effect. In order to ensure this was the case an analysis was carried out without outliers (identified through calculation of Mahalanobis distance) and as expected the solution was identical, the only differences being extremely minimal changes to a very few factor loadings. For these analyses therefore the exclusion of outliers was confirmed to be unnecessary.

Stress factor labels

Factor 1 was labelled "feeling overloaded and its effect on home life" and was rated by consultants as contributing the most to their overall job stress. The mean response to items in this factor was 1.76 and 60% of responses to items in this factor were rated by consultants as contributing to their overall job stress "quite a bit" or "a lot". Five items loaded on this factor at 0.55 or higher, four of which were very specific to this factor. The item "feeling under pressure to meet deadlines", was less specific, in that it also had a loading of 0.44 on factor 4, but it was retained on the grounds that it had a very high endorsement rate (table 8.1). he reliability of this factor was good (Cronbach's alpha (α) = 0.82). Items in this factor concerned the difficulties of an excessive workload which made conflicting demands on consultants' time and the effect on home life of working long hours and taking paperwork home.

Factor 2 was labelled "feeling poorly managed and resourced". The mean response was 1.12 and 34% of responses were rated as contributing "quite a bit" or "a lot" to consultants' overall job stress. Five items loaded on this factor at 0.55 or higher and all five were very specific to this factor. The reliability of this factor was moderate (α = 0.69). Items in this factor concerned consultants feeling they did not have sufficient control over the management of their unit, together with poor resourcing and poor use of their own skills and experience.

Factor 3 was labelled "dealing with patients' suffering", which contributed the least to consultants' overall job stress. The mean response to items in this factor was 1.06 and

26% of items were rated as contributing "quite a bit" or "a lot" to consultants' overall job stress. Four items loaded on this factor at 0.64 or higher and all four items were very specific to this factor. Reliability was moderate ($\alpha = 0.71$). Items in this factor centred on involvement with patients' physical and emotional suffering, the emotional reactions of their relatives and the threat of any legal action resulting from consultants' work.

Factor 4 was "having managerial responsibilities". The mean response to items in this factor was 1.10 and 30% of items were rated by the consultants as contributing to their overall job stress "quite a bit" or "a lot". Four items loaded on this factor at 0.58 or higher, three of which were very specific to this factor. The item "having to take on more managerial responsibilities" also loaded 0.41 on factor 1 but was retained because consultants endorsed it highly as an important source of stress (table 8.1). In addition, without this item factor 4 would have only 3 items loading on it, which would make it a rather weak factor. The reliability was again moderate ($\alpha = 0.62$). Items in this factor concerned consultants' responsibility for the quality of the work and the welfare of their junior staff, together with conflicts with other consultants.

8.2.3 Differences in stress factor scores across the four specialty groups

An examination was carried out of whether there were any differences in the extent to which consultants in the four different specialties found different aspects of their work stressful (table 8.3). Oneway ANOVA (using mean factor scores) indicated significant differences across the specialist groups for overload ($F_{3,870}=5.3$, $p=0.001$), poor management and resourcing ($F_{3,870}=3.6$, $p=0.01$), and patients' suffering ($F_{3,873}=40.6$, $p<0.001$), but not for having managerial responsibilities ($F_{3,872}=0.6$, $p=0.6$). Post hoc tests using the least significant difference technique indicated where the differences lay (table 8.4). In the case of feeling overloaded and its effect on home life, gastroenterologists and surgeons reported a higher level of stress than oncologists and radiologists. With regard to feeling poorly managed and resourced, radiologists reported higher stress from this factor than gastroenterologists and oncologists. Radiologists, however, experienced significantly less stress from having to deal with patients suffering than each the other three specialist groups. There were no differences in the degree to which the different specialists reported experiencing stress from their managerial responsibilities.

Table 8.3 -*Percentage of items in each factor rated as contributing "quite a bit" or " a lot" to job stress by specialist groups for each of the four stress factors*

Factor	Gastroenterologists %	Surgeons %	Radiologists %	Oncologists %
Feeling overloaded and its effect on home life	64	66	54	58
Feeling poorly managed and resourced	31	35	38	31
Dealing with patients' suffering	26	31	11	33
Having managerial responsibilities	29	34	30	30

Table 8.4 - *Differences across the specialist groups for each of the four stress factors*

Factor	Feeling overloaded and its effect on home life p	Feeling poorly managed and resourced p	Dealing with patients' suffering p	Having managerial responsibilities p
Gastroroenterologists vs surgeons Gastroroenterologists vs radiologists Gastroroenterologists vs oncologists	0.6 0.003 0.02	0.4 0.01 0.7	0.2 <0.001 0.1	0.3 0.9 0.8
Surgeons vs radiologists Surgeons vs oncologists	0.002 0.008	0.12 0.23	<0.001 0.9	0.3 0.2
Radiologists vs oncologists	0.5	0.002	<0.001	1

8.3 Sources of job satisfaction

Table 8.5 shows consultants' ratings of the extent to which each of the 17 aspects of work in the sources of satisfaction questionnaire had contributed to their overall job satisfaction in the past few months. As with the sources of stress, ratings were made on a scale of 0 "not at all" to 3 "a lot". Ratings are shown as the percentage of consultants scoring each item as 2 or 3, ie judging the item as contributing "quite a bit" or "a lot" to their overall job satisfaction (% endorsement) and also as mean scores. Raw scores are shown in appendix P.

The aspect of work rated by consultants as contributing the most to their overall job satisfaction, with the highest endorsement by a clear 10%, was having good relationships with patients. Having good relationships with other staff members and being perceived to do the job well by colleagues were also very important contributors to consultants' job satisfaction, along with the variety of their role and the amount of responsibility they held. The perception of having adequate facilities and resources to do a good job was an aspect of work from which few consultants' derived job satisfaction.

Table 8.5-*Consultants' responses to the Consultants Job Satisfaction Questionnaire (% endorsing each item 2 or 3, "quite a bit" or "a lot", and mean score); preamble: "To what extent have the following factors contributed to the satisfaction you have experienced in your job in the past few months?"; N for each item ranges from 871 to 881*

Source of satisfaction	*Endorsement %*	*Mean score*
Having good relationships with patients	94	2.58
Having good relationships with other staff members	84	2.18
Being perceived to do the job well by your colleagues	84	2.26
Having variety in your job	83	2.26
Having a high level of responsibility	80	2.01
Feeling you deal well with relatives	66	1.81
Having a high level of autonomy	60	1.76
Being able to being about positive change in your unit/institution	60	1.72
Feeling your clinical experience is used to the full in the job you do	59	1.69
Deriving intellectual stimulation from teaching	54	1.62
Feeling you have a high level of job security	51	1.51
Being involved in activities which contribute to the development of the profession	49	1.53
Feeling you have the staff necessary to do a good job	46	1.41
Deriving intellectual stimulation from research	40	1.33
Having opportunities for personal learning (developing clinical/.. skills	40	1.28
Feeling you have adequate facilities to do a good job	36	1.18
Feeling you have adequate financial resources to do a good job	27	0.95

8.3.1 Principal components analysis of sources of job satisfaction

Examining the correlations between the 17 sources of satisfaction (appendix Q) indicated that there was a significant positive relationship between all but a very few of the items. This suggests the items may constitute one or more factors, which as with the sources of stress could be investigated using principal components analysis. All of the variables were correlated significantly ($p<.01$) with at least some of the others and all variables were therefore retained in the analysis. Again there were a number of correlations greater than .30, further indicating the data were factorable. The overall Kaiser-Meyer-Olkin measure of sampling adequacy was .86, indicating that partial correlations are small and the measure is again well above the .6 required for good factor analysis (Tabachnick & Fidell, 1989).

Evaluation of missing data revealed 84 missing data points: 20 consultants had failed to score 1 item, 5 had failed to score 2 items, 1 had failed to score 3 items, 2 had each failed to score 6 and 11 items respectively and one consultant had not scored any items. Missing data were again widely spread across the sources of satisfaction items, with between three and six missing cases per item. Listwise deletion of all cases with missing data were carried out, for the same reasons as for the analysis of the sources of stress, leaving 851 consultants with full data sets in the analysis.

The 17 sources of satisfaction were then subjected to principal components analysis to find out if the separate items represented more general underlying sources of satisfaction. Initial examination revealed that all 17 items loaded at .44 or higher onto a general job satisfaction factor, which explained 29.8% of the variance. This indicated that, as with the sources of stress, a consultant who rated one source of satisfaction as contributing a lot to his or her overall job satisfaction was likely to rate others as doing so as well.

8.3.2 Job satisfaction factors

The initial analysis produced a solution with four factors with eigenvalues >1, which explained 53.8% of the variance. A scree test suggested three factors (appendix R). These indicators of the number of factors in a solution are based on different criteria and it is not uncommon for them to suggest different numbers of factors. There is no agreement on which indicator should be given the most weight, rather a degree of judgement must be used through examining the items which load on to factors as to which is the most meaningful solution.

Further refinement of the solution was carried out, as with the sources of stress, taking account of item response characteristics. Items which did not load very highly onto any factors or which loaded moderately on more than one factor were removed from the analysis. However, a degree of flexibility was again used in that items which had a high endorsement rate and which loaded on factors which otherwise would have had only a few

items loading on them were retained (Agius *et al.*, 1996). After removal of items which loaded moderately on to more than one factor, the fourth factor had only a small number of items loading on to it, so a three factor solution was chosen, as indicated by the scree test.

The solution presented is a principal components analysis with varimax rotation of 14 of the 17 items, shown in table 8.6. All 14 items loaded at a minimum of .42 on a first unrotated factor which accounted for 30.9% of the variance and the three rotated factors together accounted for 51.6% of the variance. No items had a loading >.40 on more than one factor, which indicates that the items were fairly specific to the main factor on which they loaded.

An oblimin rotation was examined (appendix S) and this produced exactly the same pattern of items loading on factors, which again provides evidence that the solution is robust. The correlations between the factors were slightly higher than was the case for the stress factors appendix T), the highest being .32, but looking at the overall picture there was probably, as for sources of stress, insufficient overlap in variance among the factors to warrant oblique rotation (Tabachnick & Fidell, 1989).

Table 8.6-*Loadings of Consultants' Job Satisfaction Questionnaire items on three satisfaction factors;* Varimax rotation; N=851

Questionnaire items	Factor 1 loading	Factor 2 loading	Factor 3 loading
Factor 1. Feeling well managed and resourced (30.9% variance)			
Item 5 : Feeling you have the staff necessary to do a good job	**.63**	.11	.32
Item 11: Feeling you have adequate financial resources to do a good job	**.75**	.00	.35
Item 13: Feeling you have a high level of job security	**.54**	.25	.02
Item 15: Feeling you have adequate facilities to do a good job	**.86**	.05	.15
Item 16: Feeling your clinical experience is used to the full in the job you do	**.61**	.34	.01
Factor 2. Deriving interpersonal satisfaction (11.0% variance)			
Item 1 : Having a high level of responsibility	.10	**.53**	.39
Item 2 : Being perceived to do the job well by your colleagues	.02	**.61**	.33
Item 4 : Having good relationships with patients	.07	**.74**	.03
Item 9 : Having good relationships with other staff members	.32	**.58**	.06
Item 17: Feeling you deal well with relatives	.19	**.65**	.01
Factor 3. Having opportunities for personal and professional development (9.7% variance)			
Item 3 : Being able to bring about positive change in your unit or institution	.24	.33	**.47**
Item 6 : Deriving intellectual stimulation from research	.01	.01	**.78**
Item 8 : Having opportunities for personal learning (developing clinical/.. skills	.34	.04	**.66**
Item 12: Being involved in activities which contribute to the development of the profession	.13	.21	**.68**

Job satisfaction factor labels

Factor 1 was labelled feeling well managed and resourced, the factor rated as contributing the least to consultants' overall job satisfaction. The mean response to items in this factor was 1.35 and 45.5% of items in this factor were rated as contributing "quite a bit" or "a lot" to the consultants' overall job satisfaction. Five items loaded on this factor at .54 or higher, all of which were very specific to this factor. Reliability was moderately good (Cronbach's alpha .77). Items in this factor concerned the extent to which consultants felt their level of resourcing (facilities, funding and staff) and the proper utilisation of their own clinical experience enabled them to perform their role effectively.

Factor 2 was deriving interpersonal satisfaction, which was rated as contributing the most to consultants' overall job satisfaction. The mean response was 2.19 and 84.6% of items in this factor were judged to contribute "quite a bit" or "a lot" to overall job stress. Five items loaded on this factor at .53 or higher, all of which were specific to this factor. The reliability was moderate (Cronbach's alpha .67). Items in this factor centred on having good relationships with patients, their relatives and other staff members and being held in high regard by colleagues.

Factor 3 was having opportunities for personal and professional development. The mean response was 1.47 and the 48.9% of items were rated as contributing to overall job stress "quite a bit" or "a lot". Four items had moderate and specific loadings on the factor of .47 or higher. The reliability of this factor was again moderate (Cronbach's alpha .67). Items in this factor concerned being able to develop personally through academic research and skill development and being able to contribute to the development of their unit, institution and profession as a whole.

8.3.3 Differences in satisfaction factor scores across the four specialty groups

Differences in the extent to which consultants in the four different specialties found different aspects of their work satisfying were then examined (table 8.7). One-way ANOVA (using mean factor scores) indicated significant differences in the satisfaction the different specialist groups reported from feeling well managed and resourced ($F_{3,864}$=8.0, p<0.001), from their interpersonal relationships at work ($F_{3,865}$=18.7, p<0.001), and from the opportunities their role provided for personal and professional development ($F_{3,863}$=12.6, p<0.001).

Since differences were found across the specialist groups, post-hoc tests involving pairwise multiple comparisons were used to identify where these differences lay. These indicated that for these job satisfaction factors there was a very clear pattern in the differences across the specialist groups. Surgeons reported the highest satisfaction from all three factors and radiologists the least, with gastroenterologists and oncologists somewhere in the middle. Looking at the individual factors, surgeons, gastroenterologists and oncologists described feeling well managed and resourced as contributing significantly more to their job satisfaction than radiologists, and for surgeons and gastroenterologists it contributed more than for oncologists. For the interpersonal satisfaction of their role and for professional development, surgeons derived higher satisfaction than the other three specialist groups, while gastroenterologists and oncologists also found it significantly more satisfying than radiologists.

8.3.4 Relationships between job stress and satisfaction factors and between these and mental health scores

Correlations between the job stress and satisfaction factors and between these and scores on the GHQ and on the three burnout subscales are shown in Table 8.8.1. Correlations between the stress and satisfaction factors range in magnitude from r=0.01 and to r=0.31, indicating that relationships are weak, where they exist at all. The strongest correlation indicates consultants who report high stress from feeling poorly managed and resourced report little satisfaction from this factor (r=-0.31), though this association is nevertheless weak.

Correlations between stress and satisfaction factors and scores on the measures of poor mental health indicate that emotional exhaustion is associated with all four stress factors, most strongly with feeling overloaded by one's work (r=0.49). GHQ score is associated less strongly than emotional exhaustion with the stress factors (r=0.24 to r=0.31) and depersonalisation even more weakly (r=0.13 to r=0.24). Personal accomplishment is not associated at all with scores on the factors relating to job stress, but is associated with those relating to job satisfaction, most strongly with the factor concerning deriving satisfaction from ones personal relationships at work (r=0.38).

Table 8.7 - *Percentage of items in each factor rated as contributing "quite a bit" or " a lot" to job satisfaction by specialist groups for each of the four satisfaction factors*

Factor	Gastroenterologists %	Surgeons %	Radiologists %	Oncologists %
Feeling well managed and resourced	47	52	37	42
Deriving interpersonal satisfaction	83	90	58	83
Having opportunities for personal and professional development	47	57	40	47

Table 8.8 - *Differences across the specialist groups for each of the four satisfaction factors*

Factor	Feeling well managed and resourced p	Deriving interpersonal satisfaction p	Having opportunities for personal and professional development p
Gastroroenterologists vs surgeons	0.14	0.001	0.004
Gastroroenterologists vs radiologists	0.001	<0.001	<0.001
Gastroroenterologists vs oncologists	0.06	0.7	0.8
Surgeons vs radiologists	<0.001	<0.001	<0.001
Surgeons vs oncologists	0.002	0.003	0.001
Radiologists vs oncologists	0.09	<0.001	0.001

Table 8.8.1-*Correlations between job stress and satisfaction factor scores and between these and mental health scores (scores on the General Health Questionnaire (GHQ) and on the three scales of the Maslach Burnout Inventory: emotional exhaustion, depersonalisation and personal accomplishment*)

Job stress and satisfaction factors	Sat 1:Well managed/ resourced	Sat 2: Inter-personal sat.	Sat 3: Personal/ professional develop	GHQ	Emotional Exhaustion	Deperson-alisation	Personal Accomp-lishment
Stress 1: Feeling overloaded and its effect on home life	r=-0.16 p<0.001	r=0.07 p=0.04	r=0.04 p=0.3	r=0.31 p<0.001	r=0.49 p<0.001	r=0.24 p<0.001	r=0.03 p=0.4
Stress 2: Feeling poorly managed and resourced	r=-0.31 p<0.001	r=0.02 p=0.5	r=0.04 p=0.3	r=0.25 p<0.001	r=0.35 P<0.001	r=0.13 p<0.001	r=-0.04 p=0.3
Stress 3: Dealing with patients' suffering	r=0.10 p=0.004	r=0.23 p<0.001	r=0.15 p<0.001	r=0.24 p<0.001	r=0.32 p<0.001	r=0.24 p<0.001	r=0.07 p=0.05
Stress 4: Having managerial responsibilities	r=-0.01 p=0.9	r=0.12 p=0.001	r=0.10 p=0.005	r=0.27 p<0.001	r=0.33 p<0.001	r=0.20 p<0.001	r=0.01 p=0.69
Satisfaction 1: Feeling well managed and resourced	-	-	-	r=-0.22 p<0.001	r=-0.23 p<0.001	r=-0.10 p=0.002	r=0.21 p<0.001
Satisfaction 2: Deriving interpersonal satisfaction	-	-	-	r=-0.07 p=0.04	r=-0.06 p=0.06	r-0.11 p=0.001	r=0.38 p<0.001
Satisfaction 3: Having opportunities for personal and professional development	-	-	-	r=-0.17 p<0.001	r=-0.13 p<0.001	r=-0.05 p=0.12	r=0.24 p<0.001

8.4 Composite job stress and satisfaction scores

As well as stress and satisfaction factor scores, composite scores across all job stress and satisfaction items were also calculated, in order to give a total stress and satisfaction score. In themselves these scores are not particularly meaningful, but will be used in later chapters to investigate the relationships between job stress and satisfaction and consultants' mental health. Total scores for each consultant could be based on scores across all 25 sources of stress and 17 sources of satisfaction from the original questionnaires, or based on the 18 sources of stress and 14 sources of satisfaction which loaded on to stress and satisfaction factors. The reliabilities of the scales based on all questionnaire items were slightly higher than those of the scales based only on items loading into factors (α = 0.86 vs 0.81 for stress; 0.85 vs 0.83 for satisfaction), but this was probably due to the higher number of items in the former scales. The factor analysis process was used in this study to identify the underlying dimensions of consultants' job stress and satisfaction from a pool of individual job stress and satisfaction items. The scales which consist of factors provide an overall score on a scale whose underlying dimensions, each measured by a number of items, are known. This is in contrast to the scale based on all items, in that there are a number of items which do not load on to factors and it is less clear what these items represent. The scale based on factors is therefore both more meaningful and has a composition which is more well-known. For these reasons composite scores were based on consultants scores across the stress and satisfaction items which loaded on to factors.

Missing data are problematic when scores are being used which are the sum of scores on a number of items in that they systematically reduces the total score. While various procedures for the imputation of data have been devised, these have been found to produce more biased results than deletion of cases with missing data (Kromrey & Hines, 1994). Therefore for this analysis the data for consultants who had not rated all 18 sources of stress or 14 sources of satisfaction was excluded, leaving 832 consultants in the analysis.

The highest possible score on the composite job stress scale was 54 (18 items scored 0-3). Actual scores ranged from 0 to 46, with a mean of 22.2 (SD 7.6) and median of 22.0. The distribution was approximately normal.

The highest possible score on the composite job satisfaction scale was 42 (14 items scored 0-3). Actual scores ranged from 3 to 41, with a mean of 25.2 (SD 6.7) and median of 26.0. The distribution, as for the composite job stress scale, was approximately normal.

8.5 Global ratings of job stress and satisfaction

As well as the composite scores giving total stress and satisfaction scores, consultants were asked to give a subjective rating of overall how stressful and satisfying they found

their work, rated on 0-4 scales from "not at all" to "extremely".

The distributions of scores on the global stress and satisfaction scales are shown in tables 8.9 and 8.10. Fourteen consultants did not give a global stress rating and 59 did not give a rating for their global job satisfaction. Scores on the global satisfaction scale were skewed towards the upper end. The mean global stress score was 2.2 (SD=1.0), the median score was 2; the mean global satisfaction score was 2.7 (SD1.3), median 3.

Table 8.9 - *Number and percentage of consultants scoring at each point on the global job stress scale*

Global job stress score	N	%
0	12	1
1	210	24
2	290	33
3	300	36
4	56	6

Table 8.10 - *Number and percentage of consultants scoring at each point on the global job satisfaction scale*

Global job stress score	N	%
0	6	0
1	33	4
2	165	20
3	423	52
4	196	24

8.6 Correlations between job stress and satisfaction

Composite job stress and job satisfaction were not associated with each other at all (r=0.01, p=0.9) indicating that the degree to which consultants rated various aspects of their work environment as sources of stress did not influence the degree to which they experienced aspects of work as satisfying.

Consultants' global assessments of how stressful and satisfying they found their work were negatively associated, though rather weakly (Spearman's rho=-0.24, p<0.001), indicating that consultants who were reporting their job as overall quite stressful, were slightly less likely to also report it as satisfying.

Within the different measures of job stress and satisfaction, global and composite measures of job stress were moderately strongly correlated (rho=0.61, p<0.001)), as were

global and composite measures of job satisfaction (rho=0.53, p<0.001), which indicates there is some overlap between the two measures.

CHAPTER 9: Extent of poor mental health among consultants and associations with job/demographic characteristics and job stress and satisfaction

This chapter begins with a description of the demographic and job characteristics of the hospital consultant sample for this survey and the prevalence of psychiatric morbidity and of burnout found. Univariate analyses then examine the extent to which job/demographic characteristics and consultants' ratings of job stress and satisfaction are each individually associated with psychiatric morbidity and burnout among this sample of hospital consultants. Following this, multivariate analyses are used to explore the relative importance in explaining psychiatric morbidity and burnout of the job/demographic and stress/satisfaction variables which were found to be significantly predictive univariately.

9.1 Descriptive data

There were very little missing data. Of the demographic characteristics, gender, age and number of years in post were each not reported by one consultant (not the same consultant), marital status was not reported by two consultants and extent of private practice was not reported by three consultants. Four consultants did not complete all items of the Maslach Burnout Inventory and one did not complete the General Health Questionnaire. As discussed in the previous chapter, all cases with missing data were excluded from these analyses.

9.1.1 Demographic and job characteristics

Eighty-eight per cent of this group of consultants was male, and they were aged predominantly between 36 and 55 years, with only a few aged under 35 or over 55. Almost all were married (95%). They were for the most part quite established consultants, with (71%) having been in a consultant-grade post for more than 5 years. The great majority (86%) had a purely clinical role, compared with having mixed clinical and academic responsibilities. Ninety per cent worked full-time and two-thirds (68%) were involved in private practice in addition to their NHS commitments.

Differences in demographic and job characteristics across specialist groups are shown in table 9.1. Significant differences among the specialist groups were as follows. Radiologists and oncologists had more females among their number than gastroenterologists and surgeons (X^2_1(chi-square) = 26.2 and 25.1 for gastroenterologists and 25.5 and 24.2 for surgeons; all $p<0.001$). A smaller proportion of surgeons was single than married, cohabiting, divorced or separated when compared with radiologists and oncologists (X^2_1 =4.5, $p = 0.03$; $X^2_1 = 5.7$, $p = 0.02$). Gastroenterologists were older than radiologists and oncologists ($X^2_3 = 31.9$, $p<00.01$; $X^2_3 = 16.7$. $p<0.001$), as were surgeons ($X^2_3=19.8$, $p<0.001$; $X^2_3=8.0$, $p=0.005$) and there was a difference in the ages of radiologists and oncologists which appeared to be largely accounted for the higher number of radiologists who were 35 or younger ($X^2_3 = 10.2$, $p=0.001$). Gastroenterologists

had spent a greater number of years in post that surgeons (χ^2_2 = 7.9, p = 0.005), radiologists (χ^2_2= 9.4, p=0.002) and oncologists (χ^2_2=8.8, p=0.003). A smaller proportion of radiologists held academic posts compared with gastroenterologists, surgeons and oncologists (χ^2_1=11.9, 16.5, and 26.4 respectively, all p<0.001). A smaller proportion of oncologists worked part-time (defined here as less than 10 sessions a week) compared with surgeons (χ^2_1=6.3, p=0.01) and radiologists (χ^2_1=7.1, p=0.008). A smaller proportion of oncologists were involved in private practice than gastroenterologists, surgeons and radiologists (χ^2_1=20.8, 48.6 and 17.4 respectively, all p<0.001) and a higher proportion of surgeons undertook private practice than gastroenterologists (χ^2_1=9.5, p=0.002) and radiologists (χ^2_1=10.3, p=0.001).

While there were a number of significant differences in the job and demographic characteristics between the different specialist groups surveyed, these differences were generally quite small. Exceptions were the relatively smaller numbers of female gastroenterologists and surgeons, the relatively few clinical radiologists in academic posts and the relatively small numbers of oncologists working part-time and working in private practice.

Table 9.1 - *Number (%) of consultants from the four specialties with particular demographic and job characteristics*

	Gastroenter-ologists	Surgical oncologists	Clinical radiologists	Clinical/medical oncologists
	N (%)	N (%)	N (%)	N (%)
Female	9 (4)	3 (2)	41 (19)	49 (18)
Single	9 (4)	2 (1)	13 (6)	18 (7)
Married/cohabiting	223 (92)	151 (94)	192 (91)	232 (87)
Separated/divorced /widowed	9 (4)	8 (5)	7 (3)	16 (6)
Age:				
≤ 35	2 (<1)	1 (<1)	20 (9)	7 (3)
36-45	84 (35)	64 (40)	103 (48)	134 (50)
46-55	112 (47)	63 (39)	64 (30)	86 (32)
> 55	43 (18)	33 (21)	27 (13)	39 (15)
Years in post				
≤ 5	52 (22)	55 (34)	70 (33)	76 (29)
6-15	100 (41)	57 (35)	87 (41)	123 (46)
>15	89 (37)	49 (31)	56 (26)	67 (25)
Academic post	34 (14)	28 (17)	9 (4)	55 (21)
Part-time (≤ 9 sessions)	25 (10)	22 (14)	29 (14)	16 (6)
Private practice (≥ 1 session/week)	172 (71)	137 (85)	150 (70)	135 (51)

9.1.2 Perceived adequacy of training

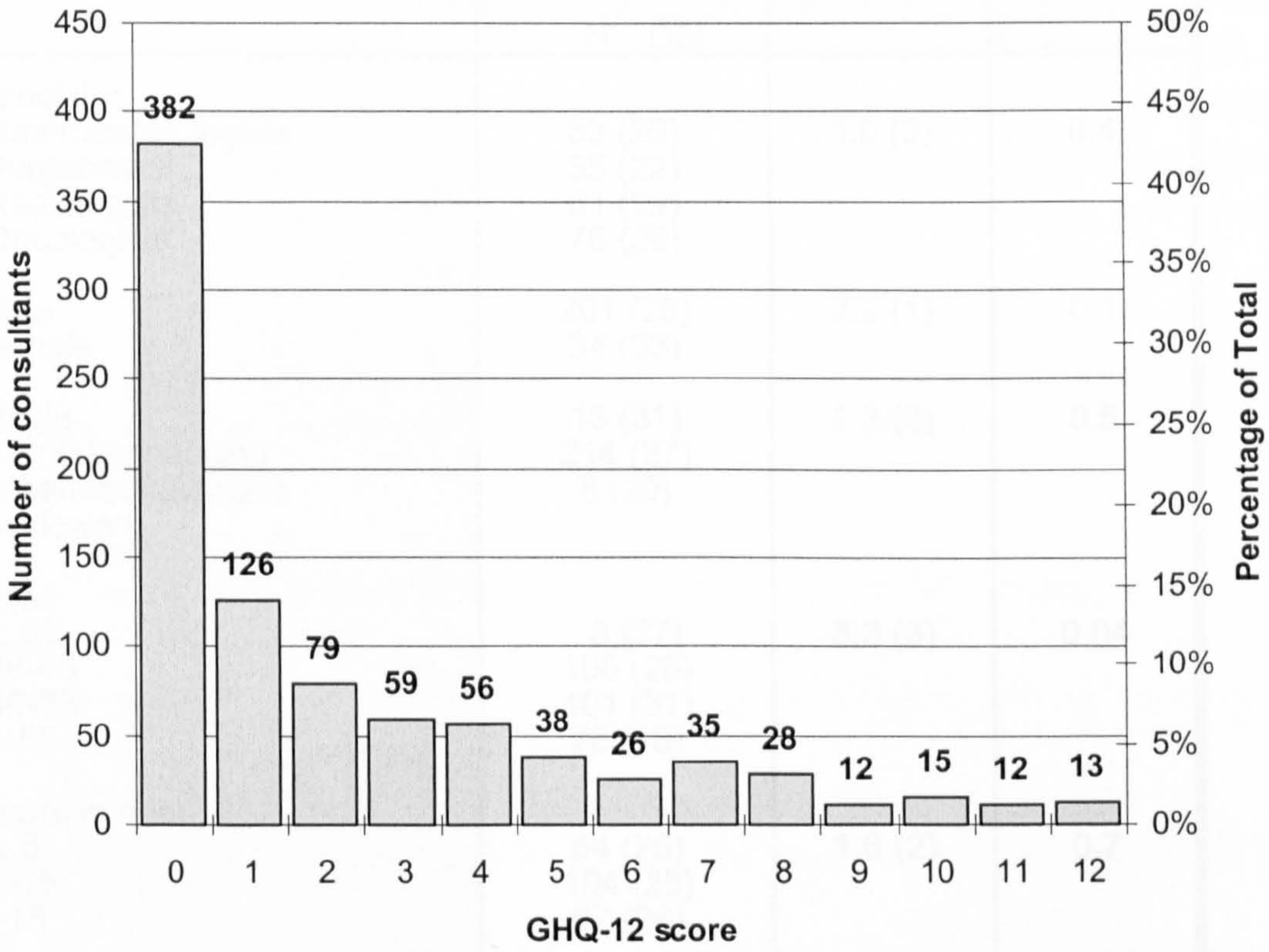
Gastroenterologists, surgeons and oncologists were asked whether they felt they had received adequate training in the treatment of disease and in symptom control. The overwhelming majority felt they had received adequate training in these aspects of patient care (639 (96%) and 561 (84%) respectively). Among radiologists, 95% (203) perceived they had received sufficient training in general radiology, while 65% (139) felt their training in specialised radiology had been sufficient. Consultants generally perceived themselves to have received sufficient training in these clinical aspects of their role, with the exception of around a third of radiologists who perceived they had received insufficient training in specialised areas of radiology, which could be, for example ultrasound, computerised, tomography or interventional procedures. When asked about another of their clinical skills, that of communication, a much smaller proportion of consultants (45% (398)) felt adequately trained. The proportion of consultants who perceived they had received adequate training in management skills was even lower, at 22% (191).

9.1.3 Prevalence of psychiatric morbidity

Using the "GHQ" method of scoring, whereby each of the 12 items is scored 0/1, 27% of consultants had a GHQ-12 score ≥4, which indicates they are estimated as having a clinically significant level of psychiatric morbidity.

Looking at the distribution of consultants' scores in figure 9.1, 43% of consultants had a score of 0, indicating they had not experienced any of the 12 symptoms of psychiatric morbidity more or much more than usual over the past few weeks. The percentages of consultants reporting symptoms more or much more than usual decreased as the number of symptoms increased. Thirteen consultants reported experiencing all 12 symptoms more or much more than usual in the last few months.

Figure 9.1 - Number (%) of consultants with each of the range of 0-12 possible scores on the GHQ-12



Using the "likert" method of scoring, where each item is scored 0-3 according to how frequently it is experienced, the mean score for the consultant group was 12.3 (SD 5.2), with a range of scores of 0-35 out of a maximum possible 36.

Examination of differences in the prevalence of psychiatric morbidity across the different job and demographic characteristics of consultants measured here indicated few differences (table 9.2). There were no differences in the prevalence according to specialty, gender, marital status, number of years worked as a consultant, type of post, whether the consultant worked full- or part-time, involvement in private practice and whether or not consultants perceived they had received sufficient training in communication and management skills. The only difference found was in age, with consultants aged over 55 having a lower prevalence of psychiatric morbidity than those in the younger age groups.

Table 9.2 - *Number (%) of consultants with GHQ score >3 by demographic and job characteristics*

Demographic/job characteristics	GHQ score >3 N (%)	X^2 (df)	p-value
Specialty:			
Gastroenterologists	63 (26)	3.0 (3)	0.4
Surgeons	35 (22)		
Radiologists	61 (29)		
Oncologists	76 (29)		
Male	201 (26)	2.2 (1)	0.1
Female	34 (33)		
Single	13 (31)	1.3 (2)	0.5
Married/cohabiting	214 (27)		
Separated/divorced /widowed	8 (20)		
Age:			
≤ 35	8 (27)	8.3 (3)	0.04
36-45	100 (26)		
46-55	101 (31)		
> 55	26 (18)		
Years in post			
≤ 5	64 (25)	1.6 (2)	0.7
6-15	104 (28)		
>15	67 (26)		
Academic post:			
Clinical	197 (26)	0.7 (1)	0.4
Academic+clinical	35 (30)		
Full-time	204 (27)	0.7 (1)	0.4
Part-time (≤ 9 sessions)	31 (23)		
No private practice	82 (29)	0.7 (1)	0.4
Private practice (≥ 1 session/week)	153 (26)		
Communication skills training:			
Insufficient	128 (27)	0.1 (1)	0.8
Sufficient	103 (26)		
Management skills training:			
Insufficient	188 (28)	1.0 (1)	0.3
Sufficient	45 (24)		

9.1.4 Prevalence of burnout

Thirty-two percent of consultants (284) reported "high" emotional exhaustion (EE), 24% (216) "high" depersonalisation (DP), and 39% (346) "low" personal accomplishment (PA). These prevalences were compared with the norm data available for the MBI, which is based on a sample of 1104 US health care professionals. The cut-off scores on the MBI are set so that one third of the norm group were categorised as "low", "moderate" and "high" on each subscale. The same proportion of UK consultants, in comparison with the US norm data, reported high EE (32% vs 33%; χ^2_1=0.10, p=0.8. A smaller proportion of UK consultants reported high DP (24% vs 33%; χ^2_1=16.7, p<0.001), and a larger proportion of UK consultants reported low PA (39% vs 33%; χ^2_1=8.1, p=0.004).

From the raw scores on each subscale, the mean score for EE was 21.8 (SD 10.2), out of a possible maximum score of 54, for DP 6.8 (SD 5.3), maximum 30, and for PA 34.5 (SD 8.1), maximum 48.

Among the UK consultants the prevalences of high EE and DP subscale scorers were similar across the specialist groups (table 9.3), but a relatively larger proportion of radiologists reported low PA (vs gastroenterologists, χ^2_1=5.5, p=0.02; vs surgeons, χ^2_1=9.9, p=0.02; vs oncologists, χ^2_1=6.8, p=0.009).

Table 9.3 - *Number (%) of consultants from the four specialist groups with high EE, high DP and low PA*

	Gastroenter-ologists N (%)	Surgeons N (%)	Radiologists N (%)	Oncologists N (%)
High EE scores	75 (31)	44 (27)	71 (33)	94 (35)
High DP scores	67 (28)	30 (19)	46 (21)	73 (27)
Low PA scores	91 (38)	52 (32)	105 (49)	98 (37)

There were no differences in the prevalences of high EE, high DP or low PA according to gender (table 9.4).

Table 9.4 - *Number (%) of male and female consultants with high EE, high DP and low PA*

	Male N (%)	Female N (%)
High EE scores	242 (31)	42 (41)
High DP scores	194 (25)	22 (22)
Low PA scores	302 (39)	44 (43)

Across the different age groups, consultants aged 35 or younger and those older than 55 had a relatively low prevalence of EE compared with consultants in the middle two age groups (χ^2_3=17.2, p=0.001) (table 9.5). There was a different pattern for DP, with the highest prevalence being found among very young consultants, and the prevalence appearing to decrease across the higher age groups (χ^2_3=26.3, p<0.001). Around 40% of consultants across all age groups were categorised as having low PA (χ^2_3=0.4, p=0.9).

Table 9.5 - *Number (%) of consultants of different ages with high EE, high DP and low PA*

	≤ 35 years N (%)	36-45 years N (%)	46-55 years N (%)	> 55 years N (%)
High EE scores	7 (23)	133 (35)	118 (36)	26 (18)
High DP scores	11 (37)	111 (29)	82 (25)	12 (9)
Low PA scores	13 (43)	148 (39)	127 (39)	58 (41)

Examining whether burnout varied according to perceived adequacy of training (table 9.6), consultants who felt insufficiently trained in communication skills had a higher prevalence of DP (χ^2_1=8.22, p=0.004) and a higher prevalence of low PA (χ^2_1=20.06, p<0.001), than those who felt themselves to be sufficiently trained. A similar pattern was observed for the perceived adequacy of training in management skills, with more of those feeling inadequately trained experiencing DP (χ^2_1=4.68, p=0.03) and low PA (χ^2_1=4.96, p=0.03) than those who felt adequately trained.

Table 9.6 - *Number (%) of consultants who perceived they had sufficient or insufficient training in communication and management skills with high EE, high DP and low PA*

	Communication skills		Management skills	
	Sufficient N (%)	Insufficient N (%)	Sufficient N (%)	Insufficient N (%)
High EE scores	124 (31)	158 (33)	54 (28)	227 (33)
High DP scores	79 (20)	136 (28)	35 (18)	180 (26)
Low PA scores	124 (31)	221 (46)	61 (32)	282 (41)

Relationships between the remaining job and demographic characteristics and burnout are examined in section 9.3.

9.2 Relationships between psychiatric morbidity and burnout

Before beginning to explore systematically associations between work and demographic characteristics and consultants' mental health, the relationships of the different mental health indicators with each other were examined (table 9.7). Pearson's correlations were used since the distributions of all scores were approximately normal. Associations were found between psychiatric morbidity and burnout. Consultants' scores on the GHQ were moderately strongly correlated with EE score, moderately correlated with DP score, and weakly negatively correlated with PA score. Looking at associations between the three dimensions of burnout, there was a moderate correlation between EE and DP, but no relationship at all between EE and PA, or DP and PA.

Table 9.7 - *Correlations between psychiatric morbidity and burnout*

	GHQ score	EE score	DP score
EE score	r=0.59 p<.001	-	-
DP score	r=0.32 p<.001	r=0.53 p<.001	-
PA score	r=-0.16 p<.001	r=0.03 p=0.4	r=0.02 p=0.6

9.3 Univariate analysis of associations between psychiatric morbidity/burnout and consultants' demographic characteristics and ratings of job stress and satisfaction

Having identified that over a quarter of consultants in this sample were estimated to have clinical levels of psychiatric morbidity, that between a quarter and a third had high levels of burnout, the next stage was to investigate more systematically the extent to which consultants' ratings of the stress and satisfaction they experience through their work, together with sociodemographic and job factors, are associated with poor mental health.

For continuous variables, associations with psychiatric morbidity and the three subscales of burnout were investigated using univariate regression analysis (table 9.8).

Table 9.8 - *Univariate regression analysis of job/demographic characteristics and ratings of global job stress and satisfaction on psychiatric morbidity and burnout*

	GHQ score	EE score	DP score	PA score
Global job stress	r=0.47 p<0.001	r=0.63 p<0.001	r=0.33 p<0.001	r=-0.06 p=0.08
Composite job stress	r=0.40 p<0.001	r=0.55 p<0.001	r=0.30 p<0.001	r=0.02 p=0.5
Global job satisfaction	r=-0.33 p<.001	r=-0.35 p<0.001	r=-0.20 p<0.001	r=0.33 p<0.001
Composite job satisfaction	r=-0.21 p<0.001	r=-0.19 p=0.005	r=-0.11 p=0.001	r=0.36 p<0.001
Age group	r=-0.03 p=0.4	r=-0.12 p<0.001	r=-0.17 p<0.001	r=-0.02 p=0.6
Years as consultant	r=0.03 p=0.5	r=-0.07 p=0.04	r=-0.14 p<0.001	r=0.01 p=0.8

There were moderate associations between consultants ratings of job stress and satisfaction and their level of psychiatric morbidity, along with their scores on the EE and DP subscales of burnout. These indicated that as consultants perception of the degree to which they found their work stressful increased, assessed on both the global and composite scales, so did the number of symptoms of psychiatric morbidity they experienced, as well as indicators that they were experiencing burnout. As their job satisfaction increased, their psychiatric morbidity, EE and DP scores decreased. Associations with PA score followed a different pattern, having no association at all with consultants' ratings of job stress, but significant, though moderately weak, positive associations with job satisfaction. Being relatively young in age or having worked at consultant level for relatively few years was associated with having slightly higher EE and DP scores.

Where data were categorical, with more than two categories (marital status, specialty), one-way analysis of variance was used (table 9.9).

Table 9.9 - *One way ANOVA investigating relationships between job/demographic characteristics and psychiatric morbidity and burnout (F_{df}, p-value)*

	GHQ score	EE score	DP score	PA score
Marital status	$F_{2,877}$=1.99 p=0.1	$F_{2,877}$=4.06 p=0.02	$F_{2,877}$=0.66 p=0.5	$F_{2,877}$=0.09 p=0.9
Specialty	$F_{3,878}$=3.30 p=0.02	$F_{3,878}$=0.82 p=0.5	$F_{3,878}$=3.52 p=0.02	$F_{3,878}$=5.23 p=0.001

This analysis indicated consultants' EE score varied across the different categories of marital status, while GHQ score, DP score and PA score varied across the different specialist groups. Examination of mean scores is required to identify where the differences lie.

Comparison of mean scores indicated EE scores were relatively high for consultants who were single rather than married/cohabiting or separated/divorced/widowed (table 9.10).

Table 9.10 - *Comparison of mean EE scores for marital status*

Marital status	Mean score	95%CI
Single	25.9	22.3 - 29.5
Married/cohabiting	21.7	21.0 - 22.4
Separated/divorced/widowed	20.2	17.3 - 23.2

Mean GHQ scores across the specialty groups indicated relatively low psychiatric morbidity among surgeons (table 9.11).

Table 9.11 - *Comparison of mean GHQ scores across the specialty groups*

Specialty	Mean score	95%CI
Surgeons	11.2	10.6 - 11.9
Gastroenterologists	12.3	11.6 - 13.0
Oncologists	12.9	12.2 - 13.5
Radiologists	12.3	11.6 - 13.0

Turning to DP (table 9.12), here again it was the surgeons with the relatively low score, though the mean for radiologists also appeared relatively low in comparison with those for oncologists and gastroenterologists.

Table 9.12 - *Comparison of mean DP scores across the specialty groups*

Specialty	Mean score	95%CI
Surgeons	5.9	5.3 - 6.6
Gastroenterologists	7.5	6.7 - 8.2
Oncologists	7.1	6.4 - 7.8
Radiologists	6.3	5.6 - 7.0

For the PA dimension of burnout, here it was the radiologists with the relatively low score, indicating higher burnout according to this dimension (table 9.13).

Table 9.13 - *Comparison of mean PA scores across the specialty groups*

Specialty	Mean score	95%CI
Surgeons	35.8	34.6 - 36.9
Gastroenterologists	35.0	34.1 - 36.0
Oncologists	34.6	33.5 - 35.6
Radiologists	32.7	31.5 - 33.9

For categorical data where there were only two categories (for example, gender), independent sample t-tests provided an estimation of the associations (table 9.14).

Table 9.14 - *T-tests investigating relationships between job/demographic characteristics and psychiatric morbidity and burnout (t, p-value)*

	GHQ score	EE score	DP score	PA score
Gender	t=1.6 p=0.1	t=0.99 p=0.3	t=1.37 p=0.2	t=1.58 p=0.1
Post (academic and clinical vs purely clinical)	t=0.87 p=0.4	t=1.04 p=0.3	t=2.22 p=0.03	t=1.62 p=0.1
Full time vs part-time ($\leq$ 9 sessions)	t=0.53 p=0.6	t=0.46 p=0.6	t=0.23 p=0.8	t=0.07 p=0.9
No private practice vs $\geq$ 1 session/week	t=1.12 p=0.3	t=1.15 p=0.3	t=1.35 p=0.2	t=1.26 p=0.2
Sufficient training in management skills, no/yes	t=0.97 p=0.3	t=2.23 p=0.03	t=2.32 p=0.02	t=3.49 P<0.001
Sufficient training in communication skills, no/yes	t=1.23 p=0.2	t=2.09 p=0.04	t=3.68 p<0.001	t=3.97 p<0.001

There were no differences in psychiatric morbidity or burnout in men compared with women, between consultants working full- vs part-time, or according to whether or not consultants worked in private practice in addition to their NHS commitments. Regarding type of post held, there was a difference in DP score between consultants holding a post which combined academic and clinical work and those whose role was purely clinical. Comparison of mean scores in table 9.15 indicates consultants involved in academic work reported less DP, though the large SD demonstrates a large spread of scores.

Table 9.15 - *Comparison of mean DP scores across type of post*

Type of post	Mean score (SD)
NHS hospital-based consultant	7.0 (5.3)
University professor/reader /senior lecturer	5.8 (5.1)

There were significant differences in scores on all three dimensions of burnout according to whether consultants felt they had received sufficient training in management skills and on all three dimensions for communication skills (table 9.14), with those who perceived their training to have been insufficient having higher scores on EE and DP and lower PA (table 9.16).

Table 9.16- *Comparison of burnout scores according to consultants' perception of whether the they had received sufficient training in management and communication skills*

	EE mean (SD)	DP mean (SD)	PA mean (SD)
Training in management skills: insufficient	22.2 (10.0)	7.0 (5.3)	34.0 (8.3)
sufficient	20.3 (10.3)	6.0 (5.2)	36.3 (7.4)
Training in communication skills: insufficient	22.4 (10.1)	7.4 (5.3)	33.5 (7.8)
sufficient	21.0 (10.1)	6.1 (5.1)	35.6 (8.4)

So overall, what do these univariate analyses show?

Psychiatric morbidity

Psychiatric morbidity was not related at a significant level with any demographic or job characteristics other than specialty, with surgeons having a relatively low prevalence of psychiatric morbidity compared with the other specialist groups. With job stress and satisfaction, however, psychiatric morbidity score showed a moderate association, with GHQ score increasing as job stress increased and decreasing as job satisfaction increased.

Emotional exhaustion

Moving on to burnout, of the demographic factors, consultants' age and number of years in post were associated with the extent of emotional exhaustion, with consultants who were relatively young or who had worked at consultant level for relatively few years having higher EE scores. Consultants who were single, rather than married/cohabiting or widowed/divorced had higher EE scores, as did those who felt insufficiently trained in management and communication skills. Associations with job stress and satisfaction were again clearly found. These followed the same pattern as for psychiatric morbidity, but were relatively greater in magnitude, with the exception of that for composite job satisfaction.

Depersonalisation

As with emotional exhaustion, consultants who were young or who had relatively few years in post had higher depersonalisation scores. Depersonalisation also varied across the specialty groups, with surgeons again having relatively low scores on this dimension

of burnout. Consultants involved in academic rather than purely clinical work had lower depersonalisation, while those who felt insufficiently trained in both management and communication skills had higher DP scores. Once again relationships were found with job stress and satisfaction in the same pattern as for GHQ score and EE score, though the associations were relatively weaker.

Personal accomplishment

Personal accomplishment varied according to specialist group, with radiologists this time having relatively low scores on this dimension, indicating higher burnout. The only other job/demographic characteristics to be associated with PA score were adequacy of training, with consultants who perceived their training in communication and management skills to have been insufficient having a higher prevalence. Unlike the other mental health indicators, there were no associations between personal accomplishment and consultants ratings of the stress they experienced in their work, though there was a moderate positive association with job satisfaction.

9.4 Multivariate analysis of associations between psychiatric morbidity/burnout and consultants' demographic characteristics and ratings of job stress and satisfaction

Having identified which of the predictor variables were associated with consultants' mental health univariately, multivariate analyses were then used to explore the relative importance of these in explaining psychiatric morbidity and burnout, using multiple regression analyses. For each analysis predictor variables were entered in two blocks. In the first block, job and demographic characteristics found in the univariate analyses to be associated with each mental health indicator were entered. After the variance explained by these variables had been accounted for, consultants' ratings of job stress and satisfaction were entered in the second block, in order to identify the amount of variance explained over and above job and demographic variables.

Two sets of regression analyses were carried out, one using consultants' global ratings of the stress and satisfaction they experience in their work, and a second using composite measures, based on total scores across the 25 stress and 17 satisfaction items. The different measures of stress and satisfaction were moderately strongly correlated (0.61 for stress and 0.53 for satisfaction), as would be expected for two different measures of the stress and satisfaction consultants experience in their work, and the association of one with the dependent variable may cancel out the influence of the other.

Extreme values in the form of outliers can distort the regression equation, but the data here are of limited range, therefore there are not going to be large outliers. For this reason analysis of outliers was not seen as necessary here.

9.4.1 Regression analyses using global ratings of job stress and satisfaction

Table 9.17 shows standardised beta coefficients and significance levels for job /demographic characteristics and global ratings of job stress and satisfaction regressed on to the four mental health indicators. The first column shows the results for GHQ score. Specialty was the only job/demographic variable with an association univariately, so was entered alone in the first block. Surgeons had a lower prevalence of psychiatric morbidity than the other specialist groups, so specialty was entered as a dummy variable of surgeons vs other specialists. Deletion of all cases with one or more missing values left 810 consultants in the analysis, which, as for all of these regression analyses, constitutes a high ratio of cases to independent variables. Adding consultants' global ratings of job stress and satisfaction into the analysis improved the fit of the model significantly (change in F, $F_{2, 810} = 148.2$, $p<0.001$) (table 9.17). The variables together explained 27% of the variance in consultants' GHQ scores. Standardised beta coefficients indicated that job stress had a positive relationship with GHQ score, while the relationship of job satisfaction was negative and less strong. Relationships of both of these with GHQ score were much stronger than the relationship of specialty.

Table 9.17 - *Multiple linear regression of job/demographic factors and consultants' global ratings of job stress and satisfaction on GHQ and MBI scores*

Variables	GHQ-12 score Beta	EE score Beta	DP score Beta	PA score Beta
Specialty:				
surgeons vs rest	.05	-	.04	-
radiologists vs rest	-	-	-	-.05
Age	-	-.12*	-.12	-
Number of years	-	.08	-.01	-
Single marital status	-	-.04	-	-
Academic post	-	-	-.07*	-
Management skills training	-	-	-.02	.05
Communication skills training	-	-.01	-.06	.06
Global job stress	.42***	.57***	.29***	-.01
Global job satisfaction	-.24***	-.22***	-.11**	.28***
Overall R^2	0.27	0.45	0.16	0.11

*p<.05; **p<.01; ***p<.001

In the next regression (N=797), in which emotional exhaustion was the dependent variable, age, number of years in post, single marital status, and perceived adequacy of training in communication skills were entered in the first block. Adding job stress and satisfaction in a second block improved the fit of the model significantly (change in F, $F_{2,}$

$_{797}$ = 304.6, p<.001). Overall the variables explained 45% of the variance in EE scores, though with only the job demographic factors entered after the first step the amount of variance explained was only 2%. Job stress was positively associated with EE score, while the association with job satisfaction was again negative and weaker. The rather weaker relationship of age indicated that it was the younger consultants who were at greater risk of emotional exhaustion.

The next regression examined predictors of depersonalisation (N=795). Age, number of years in post, marital status, surgeon vs other specialist, academic post and perceived adequacy of training in management and communication skills were entered in the first block. Adding job stress and satisfaction in a second block once again improved the fit significantly (change in F, $F_{2,795}$ = 50.9, p<.001). Overall 16% of the variance in DP scores was accounted for by job/demographic factors and job stress and satisfaction, though the job/demographic factors alone accounted for only 3%. Job stress again had a positive association and job satisfaction a negative and relatively weaker association. Relationships with job/demographic factors were much weaker, according to the standardised beta coefficients, the strongest indicating that consultants holding a combined academic post had a slightly lower risk of depersonalisation.

Next, variables associated with personal accomplishment were examined (N=798), and again the fit improved when job stress and satisfaction were added in (change in F, $F_{2,798}$ = 34.7, p<0.001). The smallest amount of variance of all four mental health indicators was explained here, at just 11%. In fact, only job satisfaction was related significantly to PA score, with the standardised beta coefficient indicating that this was in a positive direction (greater job satisfaction being associated with higher personal accomplishment).

9.4.2 Regression analyses using composite ratings of job stress and satisfaction

The regression analyses were then carried out again, this time using consultants' composite scores across the job stress and satisfaction items to reflect overall job stress and job satisfaction. Consultants who had not scored all 25 sources of stress or 17 sources of satisfaction were excluded from this analysis, leaving 823 in this analysis.

For the first regression, with GHQ-12 score as the dependent variable, adding in job stress and satisfaction in a second block significantly improved the fit of the model (change in F, $F_{2,823}$ = 100.9, p<0.001) (table 9.18). The variables together explained 21% of the variance in scores, while from the first block, job/demographic factors alone explained just 1%. The pattern of relationships with composite job stress and satisfaction scores was very similar across all four mental health indicators to that found using consultants' global ratings of job stress and satisfaction, with job stress here having a positive association and job satisfaction an association which was relatively weaker and negative. Surgeons compared with other specialists had a very slightly lower risk of

psychiatric morbidity.

Table 9.18 - *Multiple linear regression of job/demographic factors and consultants' composite job stress and satisfaction scores on GHQ and MBI scores*

Variables	GHQ-12 score Beta	EE score Beta	DP score Beta	PA score Beta
Specialty:				
surgeons vs rest	.10**	-	.07*	-
radiologists vs rest	-	-	-	-.05
Age	-	-.19**	-.16*	-
Number of years	-	.15	-.03	-
Single marital status	-	-.04	-	-
Academic post	-	-	-.06	-
Management skills training	-	-	-.01	.04
Communication skills training	-	-.01	-.09*	.07
Composite job stress	.40***	.55***	.30***	-.01
Composite job satisfaction	-.18***	-.17***	-.03	.34***
Overall R^2	0.21	0.37	0.14	0.15

*p<.05; **p<.01; ***p<.001

For emotional exhaustion (N=811), again job stress and satisfaction improved the fit of the model over job/demographic factors alone (change in F, $F_{2, 811}$ = 212.6, p<.001). The variables all together explained 37% of the variance in scores, with job/demographic factors alone explaining 3%. Job stress was associated in a positive direction and job satisfaction in a negative direction with EE score, younger consultants were again found to be at increased risk of emotional exhaustion.

Depersonalisation was again better explained by job stress and satisfaction together with job/demographic factors rather than the latter alone (change in F, $F_{2, 807}$ = 41.2, p<.001) (N=807). Overall 14% of the variance in DP scores was explained by job/demographic factors and job stress and satisfaction. Composite job stress score was positively related to depersonalisation, but, unlike for global job satisfaction, there was no association at all with composite job satisfaction score. Younger consultants carried an very sightly increased risk of depersonalisation, alongside consultants who felt their training in communication skills had been insufficient.

For personal accomplishment (N=811), job stress and satisfaction improved the fit over job/demographic characteristics (change in $F_{2,811}$ = 51.0, p<0.001) and overall 15% of the variance was explained. Only one variable was significantly predictive of PA scores: composite job satisfaction.

The overall picture is that consultants' job/demographic characteristics do not explain a great deal of the variance in whether or not they report burnout and psychiatric morbidity. A much greater proportion of the variance in consultants' poor mental health scores is explained when ratings of job stress and satisfaction are entered into the prediction equation, in particular for psychiatric morbidity and emotional exhaustion.

9.4.3 Associations with mental health of experiencing job stress and satisfaction from specific aspects of work

As well as examining relationships with overall job stress and satisfaction scores, the degree to which poor mental health among consultants was associated with stress and satisfaction from particular aspects of work was also examined, using stress and satisfaction factor scores. Again separate regressions were carried out for the four mental health indicators. Job/demographic characteristics which were associated with any of these indicators in the previous regressions using global and composite job stress and satisfaction scores were included in these regressions.

From table 9.19, it can be seen that reporting stress from any of the four stress factors significantly increased the risk of psychiatric morbidity, with consultants who reported stress from work overload and from dealing with patients' suffering being at greatest risk. Consultants who reported experiencing satisfaction from two of the satisfaction factors, feeling well managed/resourced and having opportunities for personal and professional development, were less likely to have psychiatric morbidity than those who did not derive satisfaction from these aspects of work. A similar pattern emerged for EE score, with consultants reporting stress from work overload, poor management/resourcing and patients' suffering being more likely than those who did not to have a high EE score. Consultants who derived satisfaction from their opportunities for personal and professional development were less likely to have a high EE score. In the case of depersonalisation, again there was a higher score among consultants reporting high levels of stress from work overload and having to deal with patients' suffering. Consultants who reported a high level of satisfaction from one of the satisfaction factors were again less likely to have a high DP score, but this time the important factor to derive satisfaction from was consultants' interpersonal relationships with patients, relatives and other staff members. Unlike the other mental health indicators, PA score was not influenced by experiencing stress from any of the stress factors. PA score was, however, associated with experiencing satisfaction from two of the satisfaction factors, but this time in a positive direction. Consultants who derived satisfaction from the interpersonal relationships in their role and from their opportunities for personal and professional development were more likely to have a high PA score, indicating lower burnout.

Table 9.19 - *Multiple linear regression of job/demographic factors and consultants' job stress and satisfaction factor scores on GHQ and MBI scores*

Variables	GHQ-12 score Beta	EE score Beta	DP score Beta	PA score Beta
Specialty:				
surgeons vs rest	.11**	-	.09**	-
radiologists vs rest	-	-	-	-
Age	-	-.07*	-.15***	-
Number of years	-	-	-	-
Single marital status	-	-	-	-
Academic post	-	-	-.07*	-
Management skills training	-	-	-	-
Communication skills training	-	-	-.07*	-
Stress factors:				
Overload	.19***	.37***	.17***	.03
Poor management/resourcing	.10**	.16***	.03	-.03
Patients' suffering	.19***	.21***	.23***	-.03
Managerial responsibilities	.09*	.05	.04	-.04
Satisfaction factors:				
Good management/resourcing	-.09*	-.05	.01	.02
Interpersonal satisfaction	-.02	-.06	-.14***	.35***
Personal/professional development	-.14***	-.10**	.03	.10*
Overall R^2	0.45	0.6	0.42	0.41

*p<.05; **p<.01; ***p<.001

CHAPTER 10: Further exploration of the relationships between psychiatric morbidity and burnout and consultants' ratings of job stress and satisfaction

This chapter involves a more in depth exploration of the relationships between consultants' ratings of the stress and satisfaction they experience in their work and their mental health. In the previous chapter, regression analyses have indicated positive associations between consultants' ratings of job stress and both psychiatric morbidity and burnout (emotional exhaustion and depersonalisation). Job satisfaction has been shown to have negative associations with these indicators of poor mental health. Personal accomplishment, the third dimension of burnout, was not associated with job stress, but had a significant positive association with job satisfaction.

What remains to be characterised more fully is the extent of any interactive relationship of job stress and satisfaction with consultants' mental health. Clearly job satisfaction has a direct association, whereby consultants who report high job satisfaction have better mental health than those who derive low levels of satisfaction from the performance of their role. But, in addition, does job satisfaction have an interactive effect with job stress on consultants mental health, such that it buffers or moderates the harmful effect of job stress on mental health? If so, at what levels of job stress and satisfaction does this interactive effect occur? Does the buffering effect occur only for consultants experiencing very high levels of job satisfaction? Or is there an effect also at moderate job satisfaction levels? Is it possible to buffer very high stress, or only moderate levels? Graphical techniques were selected to examine these questions, in order to be able to examine the relationships between the variables at a range of different levels of job stress and job satisfaction.

Analysis of the relationships between consultants' mental health and job stress and satisfaction were analysed first using consultants global ratings of their job stress and satisfaction, in which they were asked to give a subjective overall rating of how stressful and satisfying they find their work. Subsequently the analysis was repeated using composite ratings of consultants job stress and satisfaction, based on consultants' total scores on questionnaires assessing the stress and satisfaction they experience from a variety of aspects of their work. The composite ratings are more objective through being grounded in the work environment and are therefore less likely than more subjective ratings to result in trivial associations with poor mental health. Finding similar patterns of association with mental health using consultants' subjective and more objective assessments of the stress and satisfaction experienced at work would provide a stronger case that these relationships are robust.

10.1 Graphical investigation of consultants' global ratings of job stress and satisfaction and their mental health

10.1.1 Global job stress and satisfaction and psychiatric morbidity

Figure 10.1 shows consultants' global ratings of overall how stressful they find their work, from 0 ("not at all") to 4 ("extremely stressful") plotted against the percentage of consultants with clinically significant psychiatric morbidity, indicated by a score on the GHQ greater than 3. The percentage of consultants with psychiatric morbidity increased as global job stress score increased, from 0% of consultants reporting their work as not at all stressful, to more than 50% of consultants who find their work extremely stressful. The graph indicates a strong positive relationship between global stress score and psychiatric morbidity.

Figure 10.1 - *Percentage of consultants with GHQ score >3 according to global job stress score (with standard errors)*

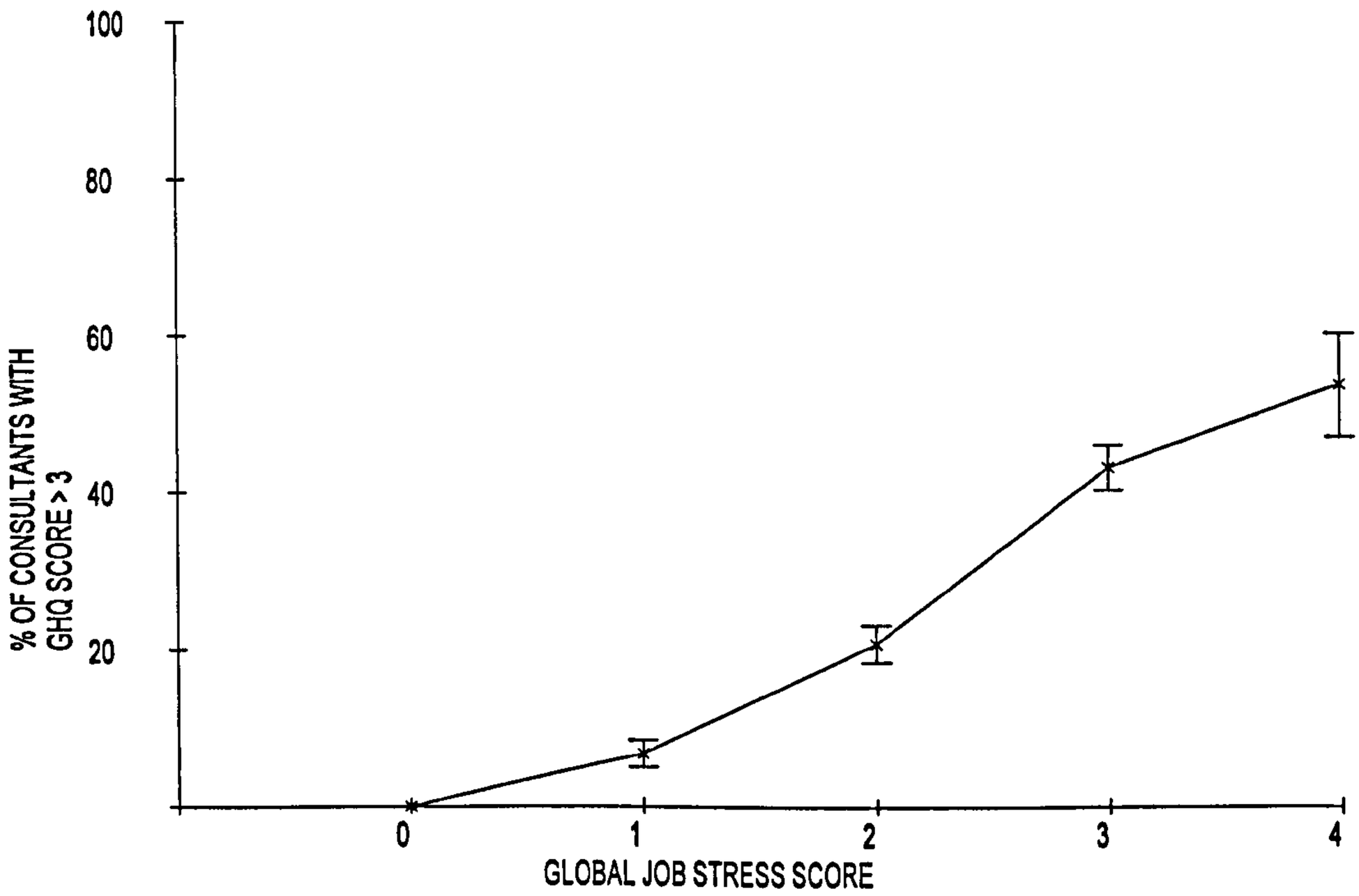
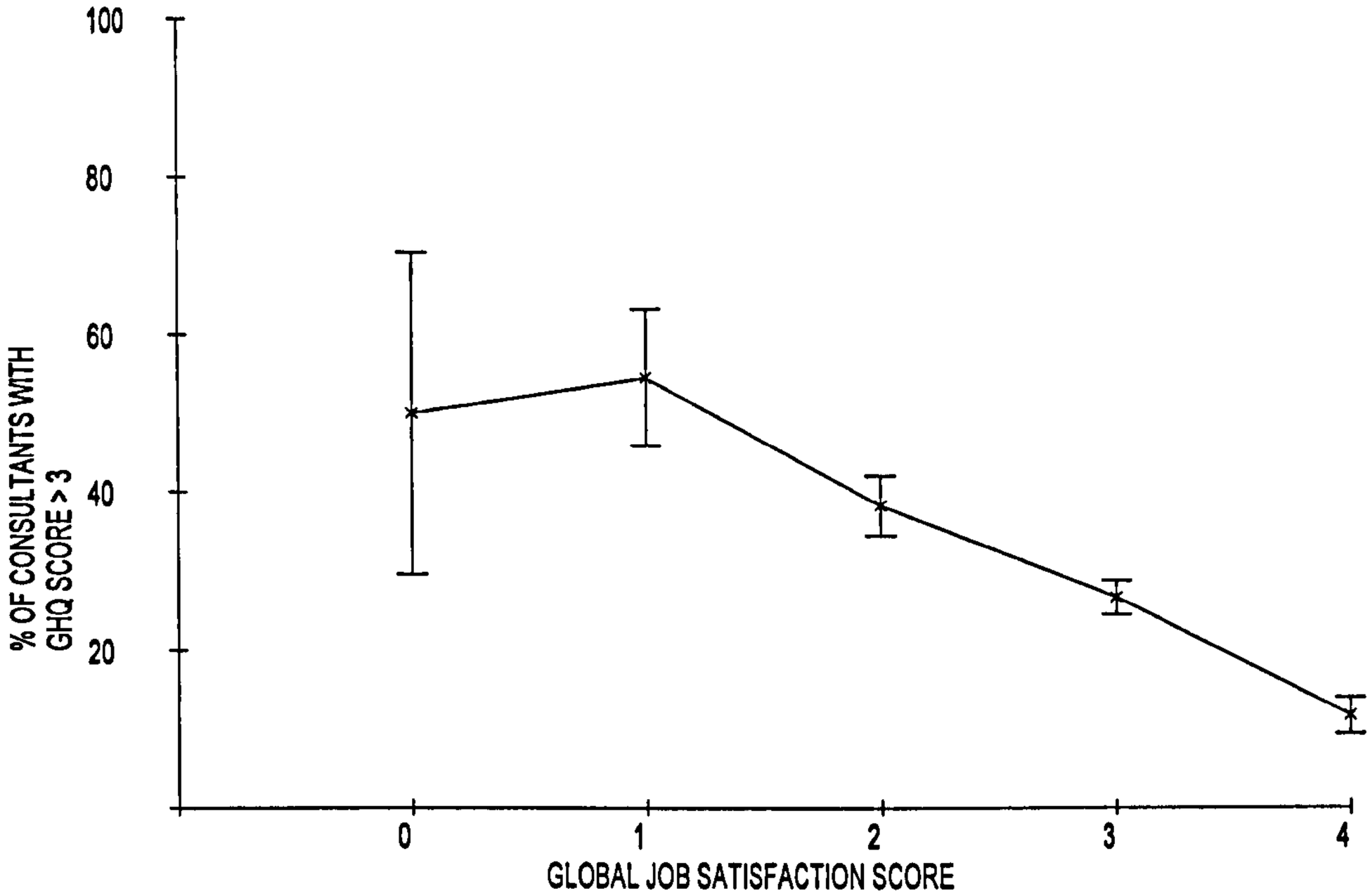


Figure 10.2 shows consultants' ratings of overall how satisfying they find their work (from 0 "not at all" to 4 "extremely satisfying"). There was an inverse relationship between global job satisfaction and psychiatric morbidity (figure 10.2), such that the percentage of consultants with a psychiatric morbidity decreased from 50% of those with low job satisfaction to approximately 15% of those who experienced high levels of job satisfaction.

Figure 10.2 - *Percentage of consultants with GHQ score >3 according to global job satisfaction score (with standard errors)*



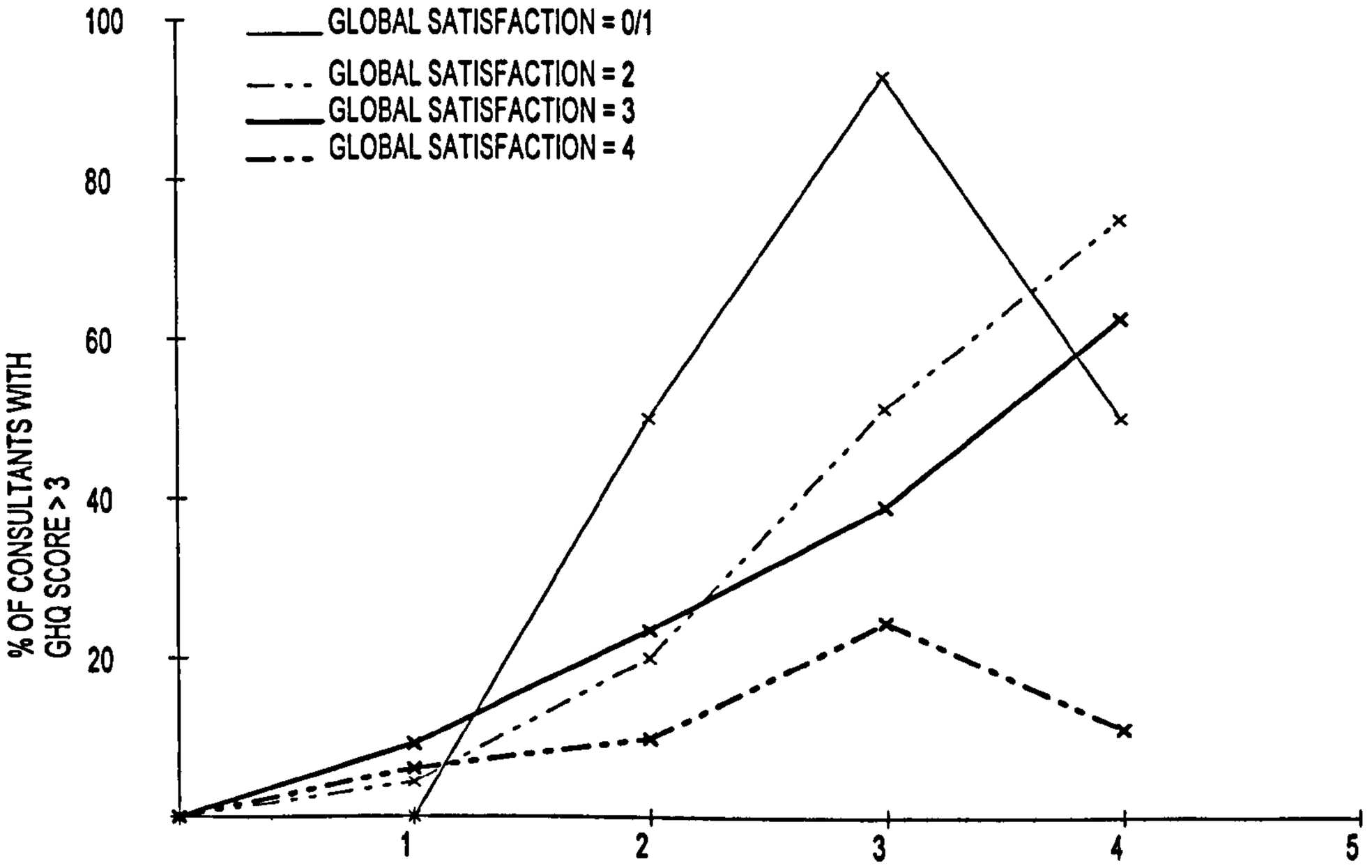
Only 6 out of 882 consultants scored 0 on the global satisfaction scale and the wide standard error bars indicate wide variation in scores at that point. Little weight should be given therefore to that scale point on the graph.

The relationship between job stress and psychiatric morbidity was then plotted a second time, examining this relationship for consultants reporting different levels of satisfaction

from their work. Separate lines were used to represent consultants scoring at different points on the global job satisfaction scale (figure 10.3). With only 6 out of the 882 consultants scoring 0 on the global satisfaction scale, a single line on the graph was used to represent consultants with job satisfaction scores of 0 and 1.

Figure 10.3 shows that there were different relationships between job stress and psychiatric morbidity across the different levels of job satisfaction. Among consultants with high job satisfaction (score of 4), the percentage with psychiatric morbidity never rose higher than 25%, even for those experiencing high levels of stress. Consultants scoring 2 or 3 on the satisfaction scale, whose job satisfaction was only moderate, had a far higher percentage of their number with psychiatric morbidity, even when experiencing only moderate levels of stress. Among consultants with very low job satisfaction (scoring 0/1), a high percentage were estimated to have psychiatric morbidity, even when again reporting only moderate levels of job stress (scores of 2 and 3).

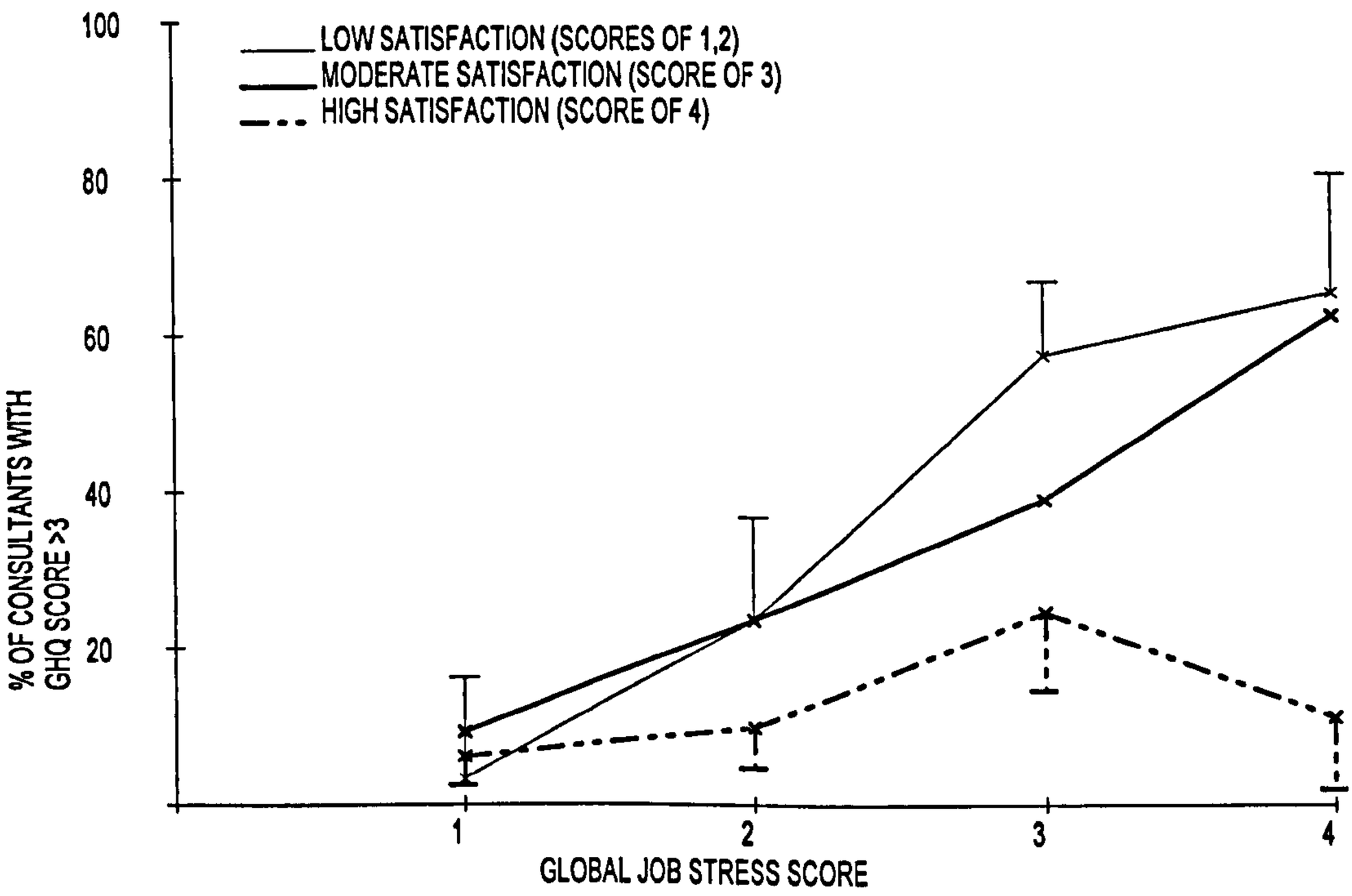
Figure 10.3 - GHQ score and level of global stress, with separate lines representing consultants with different levels of global job satisfaction



If a buffering effect was occurring, the relationship between the amount of stress consultants were experiencing and their mental health would be found to exist more strongly among consultants who were experiencing low levels of job satisfaction than for those whose levels of satisfaction from their work were high (Cohen & Ashby Wills, 1985). Examination of relationships in figure 10.3 indicates that this is the case, with job stress having a far more marked association with the percentage of consultants with psychiatric morbidity among consultants with low than with high job satisfaction. It appears therefore that job satisfaction does indeed appear to have a protective effect on the relationship between job stress and psychiatric morbidity, with the degree or protection related to both the degree of stress and satisfaction. The fan shape of the graph in figure 10.3 indicates this interactive effect: the higher the stress the greater the protective effect of job satisfaction and the higher the job satisfaction the greater its protective effect.

The relationships between job stress, job satisfaction and psychiatric morbidity were simplified further (figure 10.4), by presenting consultants in the graph in three groups, those with "low", "moderate" and "high" job satisfaction. This was done by combining into a single group consultants with satisfaction scores of 0/1and 2. The number of consultants scoring 0/1 on the job satisfaction scale was very small (33/882) and combining these data with consultants scoring 2 would give less prominence to the small group of consultants with very low satisfaction scores.

Figure 10.4 - *GHQ score and level of global stress for consultants with low, moderate and high global job satisfaction (with 95% confidence intervals)*



For clarity, confidence interval bars are shown on the outside of the lines only. Those for the middle line are of a similar magnitude to the ones shown. The confidence intervals indicate that the prevalence of psychiatric morbidity is significantly different across groups of consultants with different levels of job satisfaction only at some levels of job stress. Consultants with high job satisfaction appear to have a significantly lower prevalence of psychiatric morbidity than those with moderate or low job satisfaction at moderate to high levels of job stress (scores of 3 and 4). Differences in the prevalence of psychiatric morbidity between consultants with low and moderate levels of job satisfaction are only significant at a stress level of 3.

The relative importance of the interactive effect of job stress and job satisfaction, compared to their direct effects, was investigated using linear regression. Note that original 0-4 scores were used for job satisfaction, not condensed scores as in the graphs. An interaction term was calculated by multiplying global stress score and global satisfaction score. Job stress and satisfaction were entered in a first block (table 10.1, model 1), and their interactive effect in a second block, in order to examine whether the interaction had an effect in addition to the linear effects of job stress and satisfaction alone. The interaction between job stress and satisfaction increased the fit of the model significantly (change in F, $F_{1,810} = 8.43$, p=0.004), indicating that inclusion of the interaction between job stress and satisfaction enables better explanation of psychiatric morbidity. B values for model 2 indicate that for every 1-point increase in global stress rating there is an increase of almost four points in GHQ score (table 10.1). For an increase of 1 in job satisfaction score, GHQ score was lowered very slightly (0.3). For an increase of 1 in the score representing the interaction between job stress and satisfaction, GHQ score decreased by a relatively larger amount (0.6). This analysis suggests that although job satisfaction has both direct and interactive effects, its relationship with psychiatric morbidity is better explained in terms of an interactive relationship with job stress, rather than a relationship which is direct.

Table 10.1 - *Linear regression of global job stress and satisfaction and an interaction of the two on GHQ score*

	B (95% CI)
Model 1	
Global job stress	2.3 (1.9, 2.6)
Global job satisfaction	-1.6 (-2.0, -1.2)
Model 2	
Global job stress	3.9 (2.7, 5.0)
Global job satisfaction	-0.3 (-1.2, 0.6)
Interaction	-0.6 (-0.9, -0.2)

The size of the interactive effect can be seen from figure 10.4. Among consultants with low job stress, there was very little difference in the prevalence of psychiatric morbidity

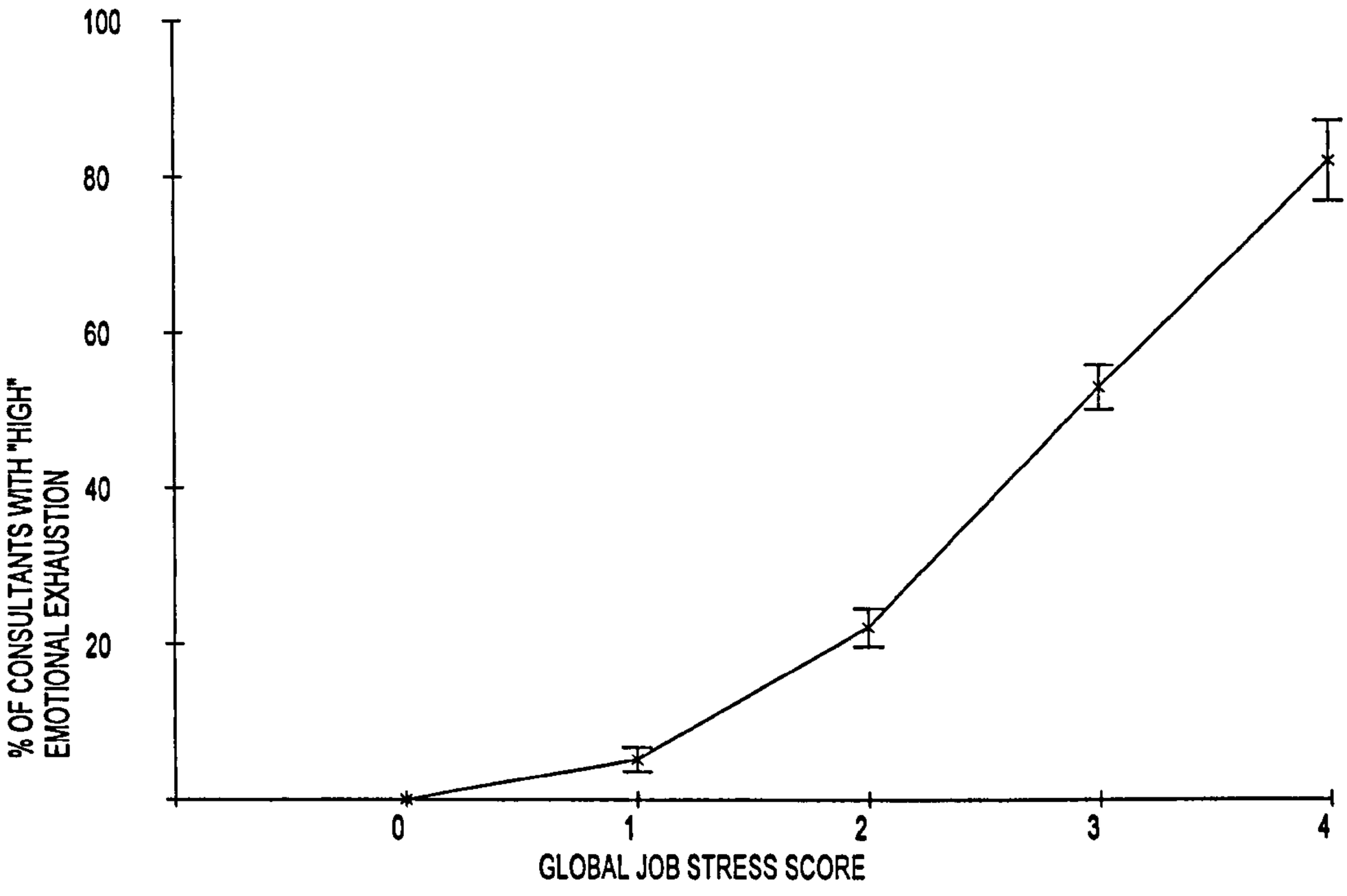
according to job satisfaction, with less than 10% of consultants at all levels of job satisfaction having psychiatric morbidity. When levels of job stress are high, however, the prevalence of psychiatric morbidity was around 70% among those with low job satisfaction, but still only 10% among consultants whose job satisfaction was high.

Overall then, for psychiatric morbidity, both direct effects and stress buffering effects of job satisfaction were found. The direct effect is shown in figure 10.2, with the percentage of consultants having psychiatric morbidity decreasing as consultants job satisfaction increased. The stress buffering effect can be seen in figures 10.3 and 10.4, where the relationship of job stress with psychiatric morbidity varies according to the level of consultants' job satisfaction, with the protective effect of job satisfaction on consultants' psychiatric morbidity varying according to both the level of stress and of satisfaction. Linear regression confirmed that the interaction between job stress and satisfaction was related to the level of consultants' psychiatric morbidity. The interactive effect of job stress and satisfaction was smaller than the straightforward linear effect of job stress, but nevertheless indicated that consultants who experienced a lot of satisfaction from the performance of their work were less likely than those with low job satisfaction to have a level of psychiatric symptoms of a severity where professional intervention would be helpful, particularly when reporting quite high levels of stress.

10.1.2 Global job stress and satisfaction and emotional exhaustion

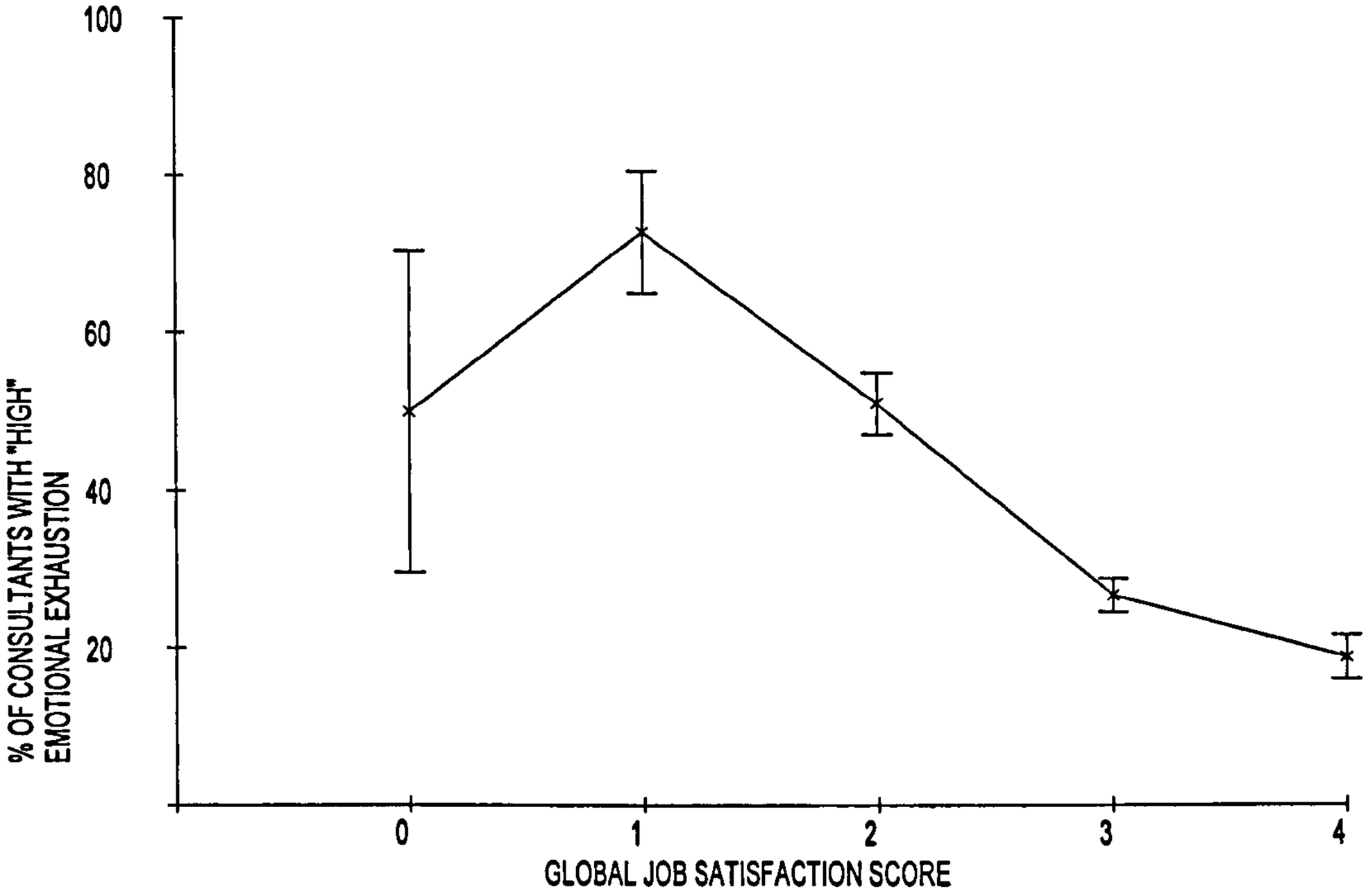
Relationships between job stress and satisfaction and burnout were examined next, looking first at emotional exhaustion. Plotting the global stress score against the percentage of consultants with high emotional exhaustion indicated that as the score on the global stress scale increased, the percentage of consultants with emotional exhaustion increased markedly, from 0% among consultants with a global stress score of 0 ("not at all" stressful), to over 80% of consultants with a global stress score of 4 ("extremely" stressful) (figure 10.5).

Figure 10.5 - *Percentage of consultants with high emotional exhaustion according to global job stress score (with standard errors)*



Plotting the percentage of consultants with emotional exhaustion against consultants' global job ratings of job satisfaction indicated an inverse relationship: as scores on the global satisfaction scale increased the percentage of consultants with high emotional exhaustion decreased (figure 10.6).

Figure 10.6 - *Percentage of consultants with high emotional exhaustion according to global job satisfaction score (with standard errors)*



Again the relationship between job stress and emotional exhaustion for consultants with different levels of job satisfaction was investigated. Global job stress score was plotted against percentage of consultants with high emotional exhaustion, but with consultants who had scores on the global satisfaction scale of 0/1, 2, 3 and 4 represented by separate lines (figure 10.7).

Figure 10.7 - *High emotional exhaustion and level of global stress, with separate lines representing consultants with different levels of global job satisfaction*

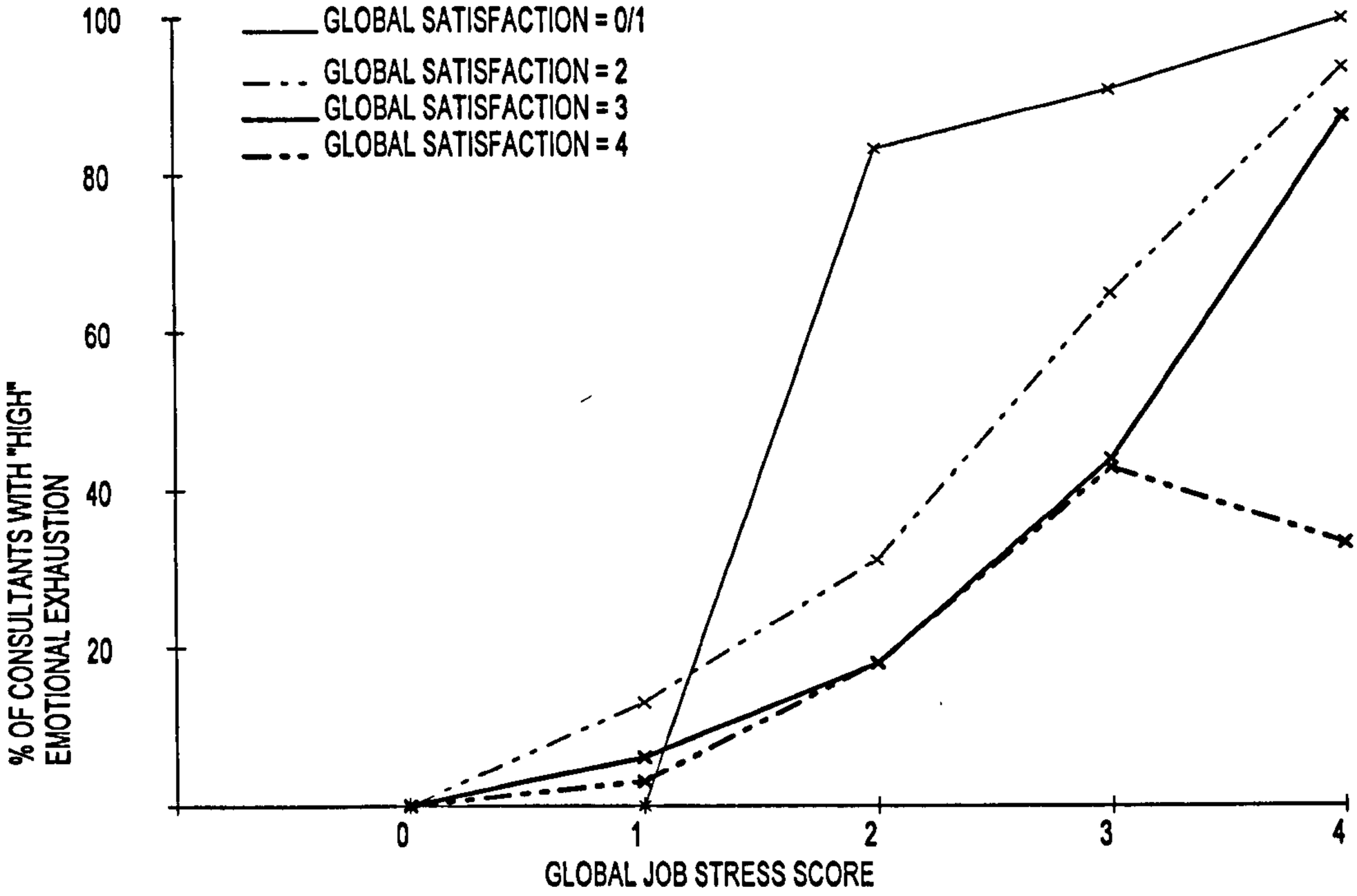


Figure 10.7 indicates that there are differences again in the relationship between job stress and the prevalence of high emotional exhaustion among consultants with different scores on the global satisfaction scale, suggesting a buffering effect of job satisfaction. Over 80% of consultants with a low global satisfaction score (score of 0/1) had high emotional exhaustion even when reporting only quite moderate levels of job stress (scores

of 2 and 3). By contrast, among consultants with high job satisfaction (satisfaction score of 4) less than 40% of consultants reported high emotional exhaustion, even when they described their work as "extremely stressful" (stress score of 4).

In order to investigate whether this pattern of relationships between job stress and satisfaction and emotional exhaustion could be represented more simply, ie by comparing “low” vs “high" satisfaction scorers, consultants were grouped together into those with scores of 0,1 and 2 (labelled "lower" satisfaction) and those with scores of 3 and 4 (labelled "higher" satisfaction). This particular way of grouping the data was chosen because, looking at figure 10.7, the percentage of consultants with high emotional exhaustion was seen to be similar among those scoring 3 and 4 at almost all levels of job stress. As before, few consultants scored 0 or 1 on the job satisfaction scale and these were placed together with the larger group of consultants scoring 3.

Figure 10.8 shows the relationship between job stress and emotional exhaustion, shown for consultants reporting higher and lower job satisfaction. As for psychiatric morbidity, regression analysis indicated that the interactive effect of job stress and satisfaction on emotional exhaustion was significant (change in F, $F_{1, 807} = 7.86$, p=0.005). This indicated inclusion of the interaction enabled greater explanation of emotional exhaustion, over and above the explanation provided by job stress and satisfaction alone. B values indicate that for an increase of 1 in global job stress rating, there is an increase of almost 9 in emotional exhaustion score (table 10.2). An increase of 1 in global job satisfaction is associated with a reduction of 0.7 in emotional exhaustion score, while such an increase in interaction score reduces emotional exhaustion score by 0.9.

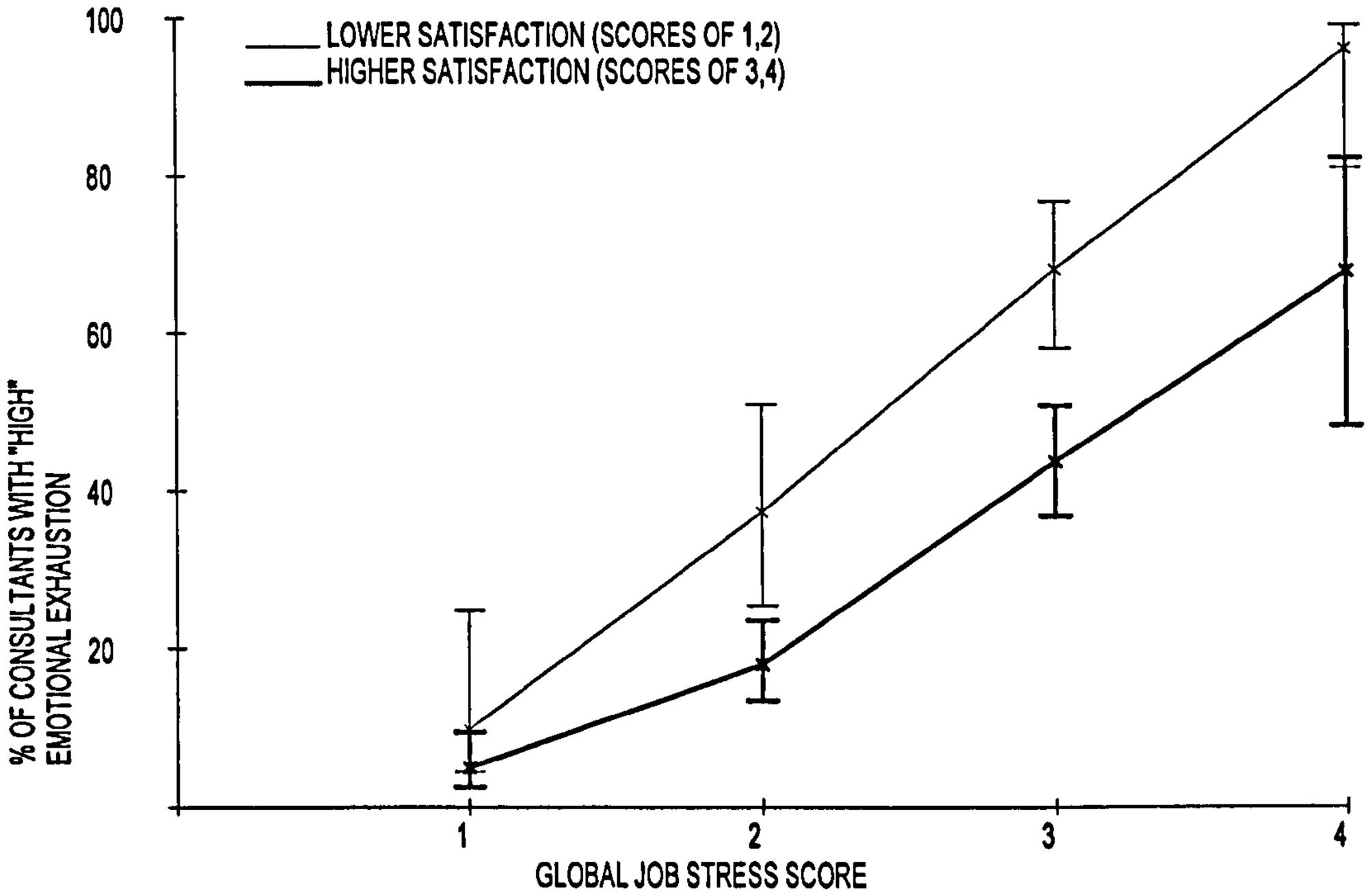
Table 10.2 - *Linear regression of global job stress and satisfaction and an interaction of the two on emotional exhaustion score*

	B (95% CI)
Model 1	
Global job stress	6.2 (5.6, 6.7)
Global job satisfaction	-2.8 (-3.4, -2.1)
Model 2	
Global job stress	8.9 (6.9, 10.8)
Global job satisfaction	-0.7 (-2.3, 0.9)
Interaction	-0.9 (-1.5, -0.3)

Examining the interaction as presented in figure 10.8, among consultants experiencing low job stress there was very little difference in the percentage with emotional exhaustion between those with higher and lower job satisfaction. Among those experiencing high job stress, almost all consultants with low job satisfaction had emotional exhaustion, compared to around 65% of those whose job satisfaction was high. The protective effect of satisfaction appeared to be uniform in magnitude at the top three levels of stress, with

higher levels of satisfaction reducing the percentage of consultants with emotional exhaustion by the equivalent of approximately one point on the global job stress scale. However, the overlap between the 95% confidence interval bars at points 1 and 4 on the stress scale indicates that among consultants with very high or very low stress there is doubt over the significance of the difference between the percentage of consultants with high emotional exhaustion according to their level of job satisfaction.

Figure 10.8 - *High emotional exhaustion and level of global stress for consultants with lower and higher global job satisfaction (with 95% confidence intervals)*



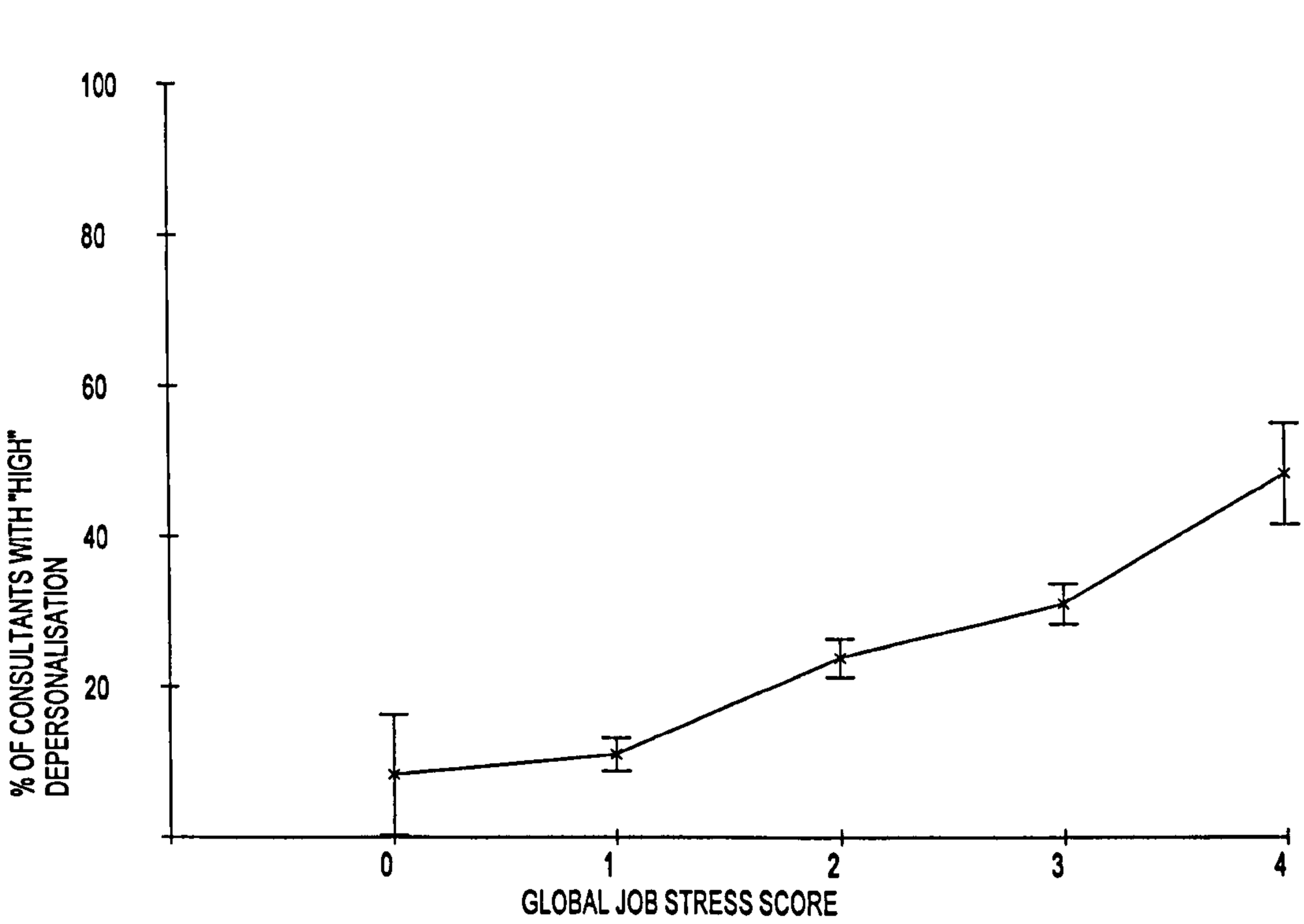
Overall, for emotional exhaustion there was an almost identical pattern of relationships as was found for psychiatric morbidity, though the direct relationships with job stress and satisfaction were more marked. Job satisfaction had both a direct negative association

with emotional exhaustion (figure 10.6), and a buffering effect on the positive association of job stress with emotional exhaustion (figures 10.7 and 10.8). Again regression indicated that the job stress had the strongest relationship with emotional exhaustion. The direct relationship of job satisfaction was quite weak, but the interactive effect job stress and satisfaction on emotional exhaustion was relatively the stronger. So regarding job satisfaction, slightly fewer consultants who derive satisfaction from their work experience emotional exhaustion overall, and in addition, the interactive effect indicates that consultants are likely to be able to tolerate high levels of stress at work and not develop emotional exhaustion as a result if they also experience a lot of satisfaction in their work.

10.1.3 Global job stress and satisfaction and depersonalisation

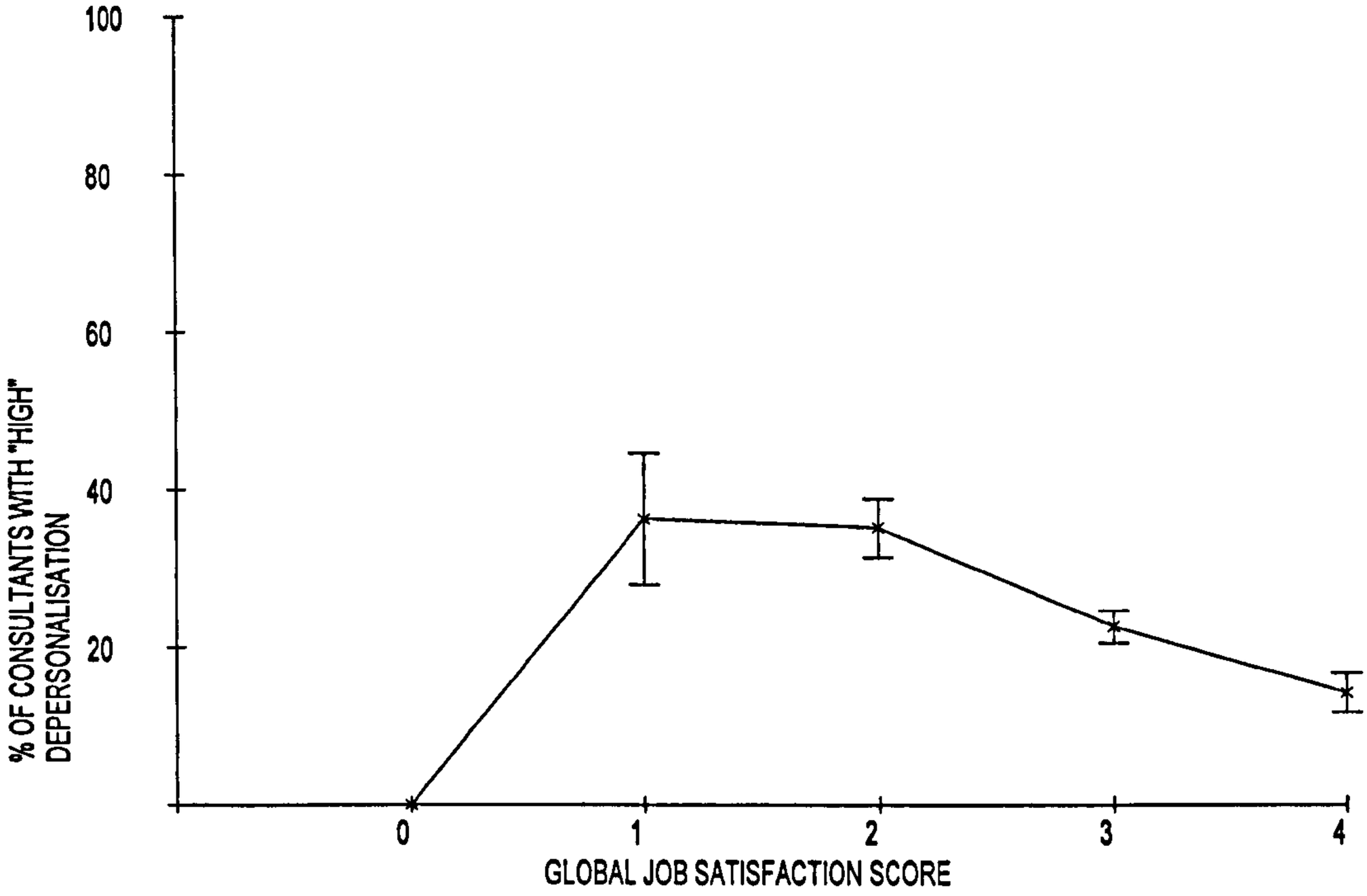
This analysis was then repeated using the next of the burnout subscales: depersonalisation. As with psychiatric morbidity and emotional exhaustion, there was a positive relationship between the severity of reported global job stress and the percentage of consultants with high depersonalisation. The relationship was not quite so strong as for emotional exhaustion, however, with around 50% of consultants experiencing high levels of job stress reporting high depersonalisation compared with around 10% of those with low job stress (figure 10.9).

Figure 10.9 - *Percentage of consultants with high depersonalisation according to global job stress score (with standard errors)*



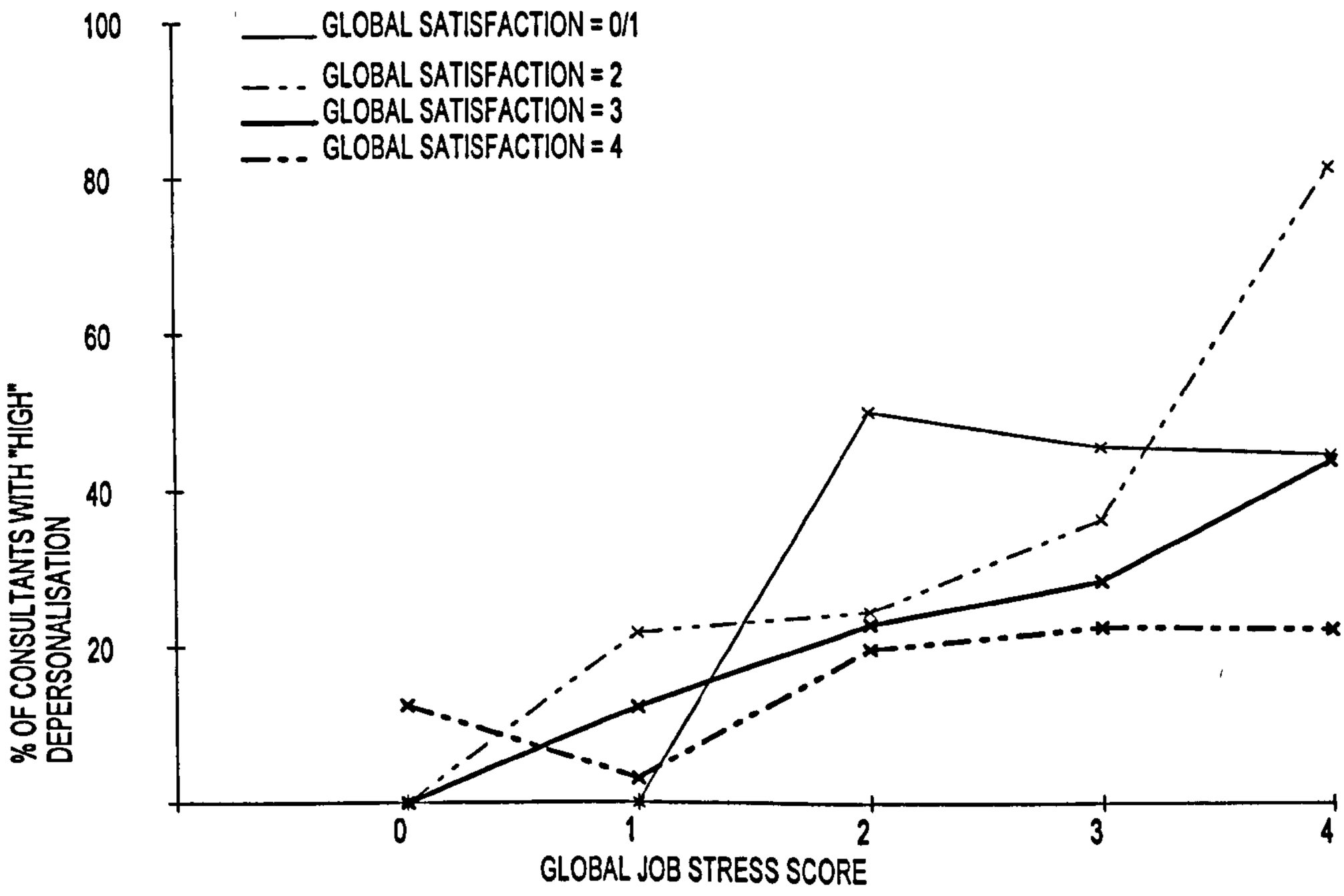
There was also, as with the other indicators of poor mental health, an inverse relationship between the degree of reported global job satisfaction and the percentage of consultants with high depersonalisation, though again this was less marked than was the case for emotional exhaustion (figure 10.10).

Figure 10.10 - *Percentage of consultants with high depersonalisation according to global job satisfaction score (with standard errors)*



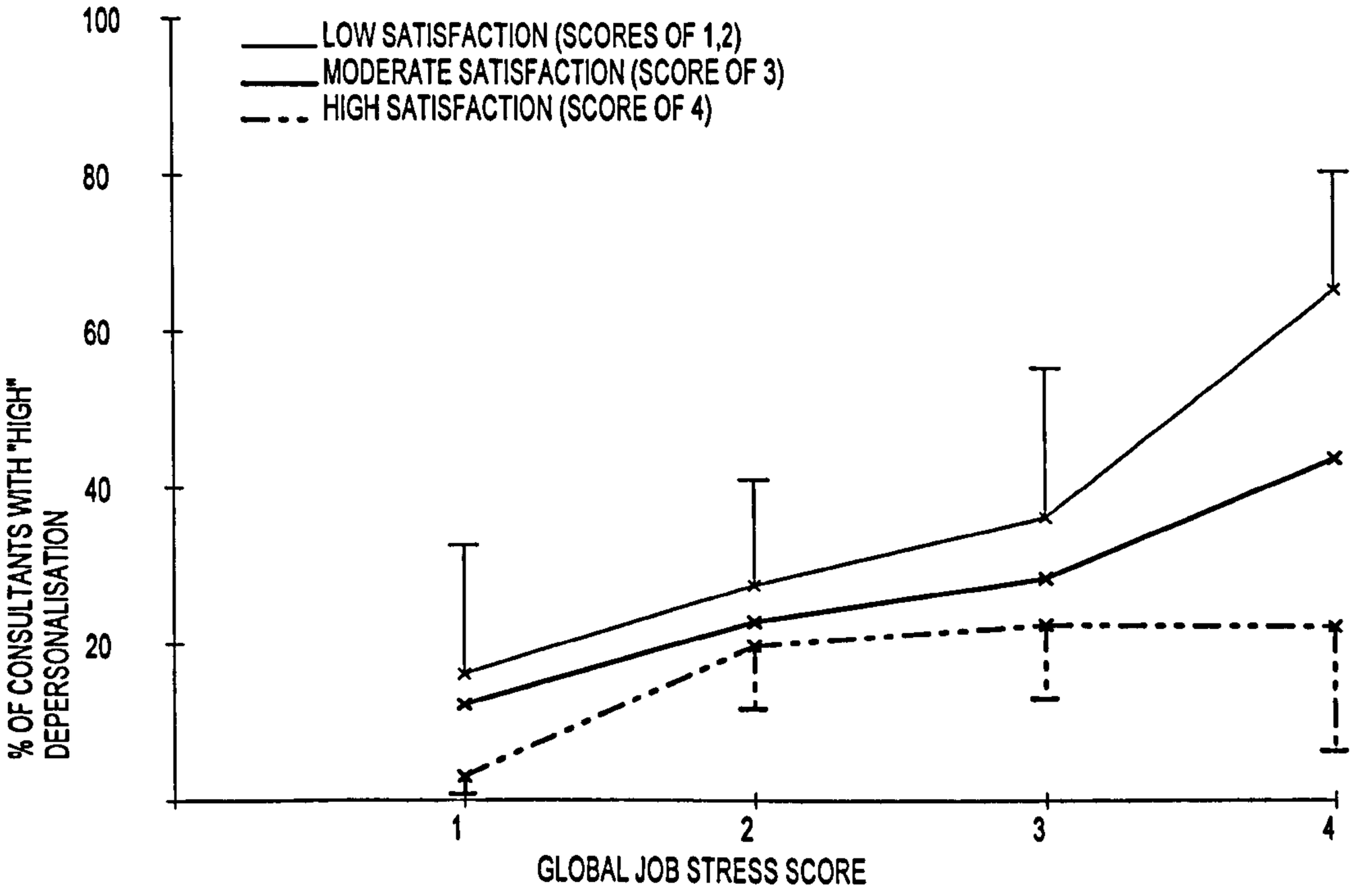
Global job stress score was then plotted against the percentage of consultants with high depersonalisation, again with a separate line to represent consultants scoring 0/1, 2, 3 and 4 on the global satisfaction scale (figure 10.11). As before, there were some differences in the relationship between job stress and depersonalisation according to level of global job satisfaction, suggesting job satisfaction may buffer the relationship of job stress with depersonalisation. Only 20% of consultants reporting extremely high job satisfaction (score of 4) had high depersonalisation even when reporting high levels of reported job stress. In fact, among consultants with extremely high job satisfaction the percentage with high depersonalisation varied very little across the different levels of job stress. A greater percentage of consultants with a satisfaction score of 3 reported high depersonalisation, and the percentage was higher again among those with a satisfaction score of 2 at a moderate level of job stress. Half of the consultants with low global job satisfaction (score of 0/1) reported high depersonalisation, even at moderate levels of job stress (score of 2), though the percentage of these consultants with high depersonalisation did not increase further as reported job stress increased.

Figure 10.11 - *High depersonalisation and level of global stress, with separate lines representing consultants with different levels of global job satisfaction*



Again an attempt was made to simplify the representation of the data. The lines on the graph did not appear to split naturally into lower and higher satisfaction scorers, as had been the case with emotional exhaustion. Rather, there seemed to be a three-way split, between those scoring 0/1/2 vs 3 vs 4 on the global satisfaction scale. These are termed "low", "moderate" and "high" satisfaction and a graph based on this split is shown in figure 10.12.

Figure 10.12 - *High depersonalisation and level of global stress for consultants with low, moderate and high global job satisfaction (with 95% confidence intervals)*



An interactive effect of job stress and satisfaction again appears to exist: at high stress levels the percentage of consultants with high depersonalisation was around 70% for those with low satisfaction, but only 20% for those whose satisfaction was high. Regression analysis indicated the interactive effect of job stress and satisfaction on depersonalisation was on the borderline of significance (change in F, $F_{1, 807} = 3.85$, p=0.05), indicating the interactive effect of job stress and satisfaction does not increase significantly the explanation of depersonalisation score. B values from model 1 indicate for a 1-point increase in overall job stress depersonalisation score will increase by 1.6, while for a similar increase in overall job satisfaction it will decrease by almost 1 (0.9) (table 10.3).

Table 10.3 - *Linear regression of global job stress and satisfaction and an interaction of the two on depersonalisation score*

	B (95% CI)
Model 1	
Global job stress	1.6 (1.3, 2.1)
Global job satisfaction	-0.9 (-1.3, -0.4)
Model 2	
Global job stress	2.9 (1.6, 4.1)
Global job satisfaction	0.0 (-1.0, 1.2)
Interaction	-0.4 (-0.8, 0.0)

From figure 10.12, the lack of a buffering effect of job satisfaction overall is clear, in that such an effect is only visible among consultants reporting extremely high job stress. The confidence intervals demonstrate that the protective effect of global job satisfaction on the relationship between global job stress and depersonalisation is not as pronounced as was found for psychiatric morbidity and emotional exhaustion.

Overall, the relationships of job stress and satisfaction with depersonalisation were weaker in magnitude than those found for psychiatric morbidity and emotional exhaustion. Although figure 10.12 indicated that the relationship between job stress and depersonalisation was different at different levels of job satisfaction, suggesting a buffering effect of job satisfaction on this relationship, regression indicated this was not quite significant. The relationship of job satisfaction with depersonalisation can only be said clearly to be direct, with consultants who experience high levels of satisfaction from their work being less likely than those with low satisfaction to treat patients in an uncaring, unfeeling way.

10.1.4 Global job stress and satisfaction and personal accomplishment

From figure 10.13 it is clear that the percentage of consultants with low personal accomplishment does not increase as global job stress increases.

Figure 10.13 - *Percentage of consultants with low personal accomplishment according to global job stress score (with standard errors)*

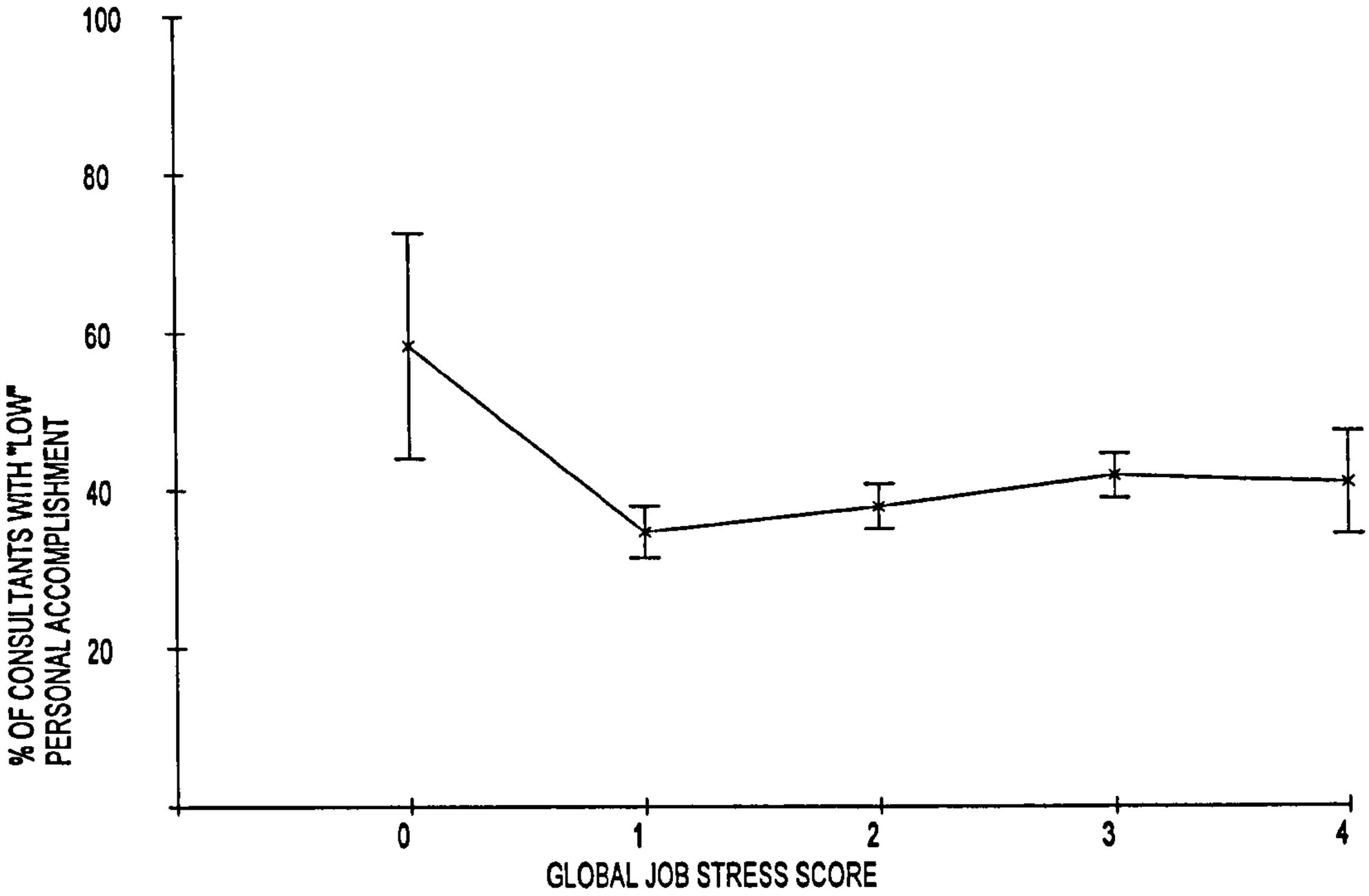
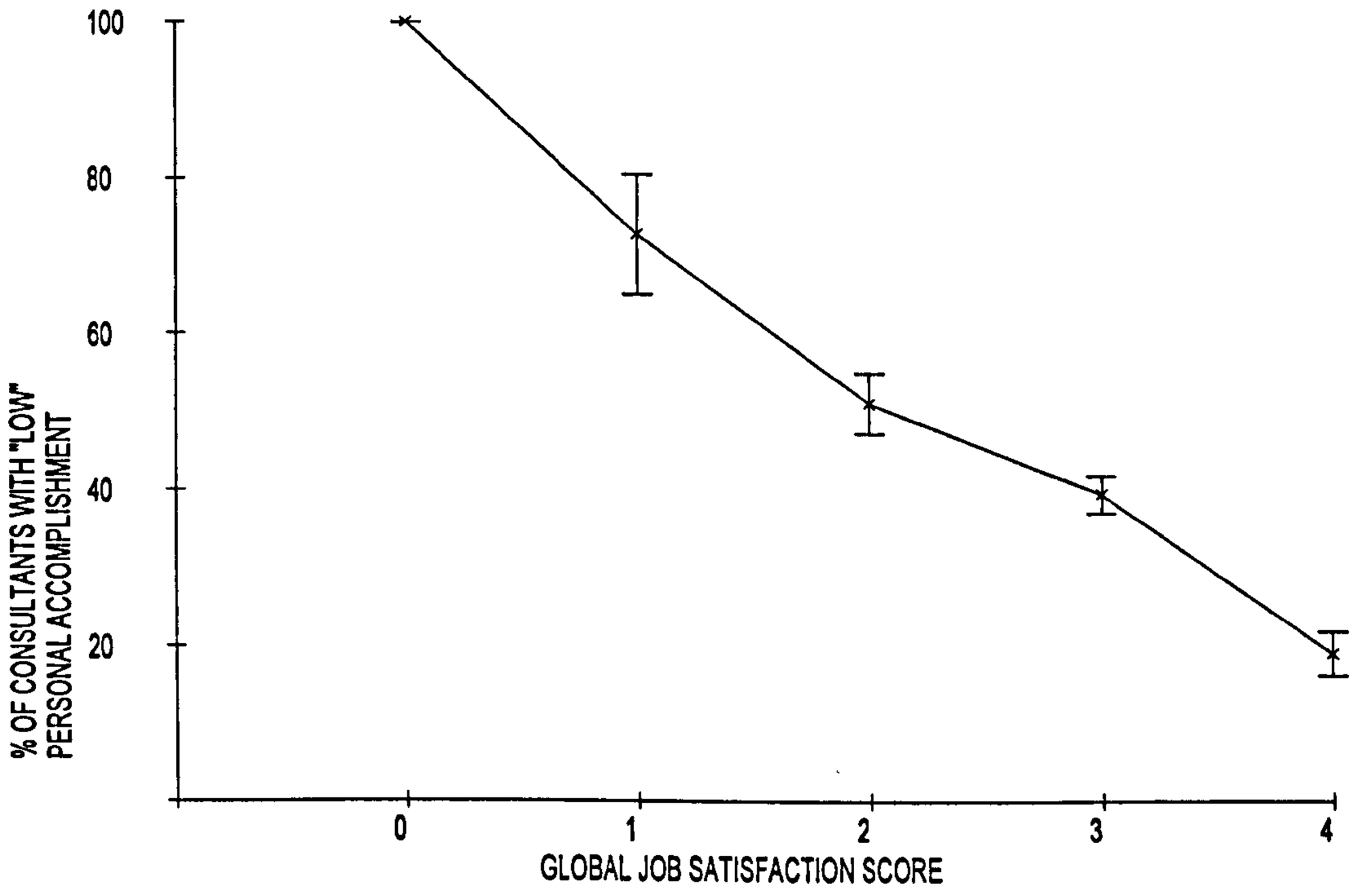


Figure 10.14 shows that there was a strong inverse relationship between global job satisfaction and the percentage of consultants with low personal accomplishment. All consultants who reported extremely low job satisfaction (score of 0) reported low personal accomplishment, compared with less than 20% of those with extremely high job satisfaction (score of 4).

The lack of a relationship between global job stress and personal accomplishment precluded any analysis of the potentially moderating effect of job satisfaction on this relationship. The direct relationship of job satisfaction on this dimension of burnout is very clear, consultants who derive high levels of satisfaction from their work being likely to experience a high level of personal accomplishment.

Figure 10.14 - *Percentage of consultants with low personal accomplishment according to global job satisfaction score (with standard errors)*



These analyses, based on consultants' global ratings of overall how stressful and satisfying they fine their work, clarify the nature of the relationships between job stress and satisfaction and consultants' mental health. Job satisfaction decreased the likelihood of consultants having psychiatric morbidity and burnout, but in different ways across these indicators of poor mental health. The greater the overall job satisfaction, the less likely it was consultants would have psychiatric morbidity or burnout according to all three dimensions. In addition to these direct effects, job satisfaction also buffered the harmful effect of job stress on consultants psychiatric morbidity and emotional exhaustion, indicated by finding that the relationship between job stress and these mental health indicators was much stronger for consultants experiencing low satisfaction in their work than those whose job satisfaction was high. So consultants experiencing high satisfaction from the performance of their role are less likely to develop symptoms of psychiatric morbidity and burnout. In addition, consultants are more likely to be able tolerate the high demands of their role without developing symptoms of psychiatric morbidity and emotional exhaustion, so long as they experience high levels of job satisfaction.

10.2 Graphical investigation of consultants' composite job stress and satisfaction and their mental health

A clear pattern of relationships with consultants' mental health has been found using consultants' global ratings of job stress and satisfaction. A single overall rating of how stressful and satisfying consultants find their work is rather subjective, however, and may demonstrate relationships with mental health which are trivial. Therefore the relationships between consultants ratings of their job stress and satisfaction and burnout and psychiatric morbidity were investigated again, using composite job stress and satisfaction scores. In addition to being more grounded in the occupational environment, composite stress scores are likely to be inherently more reliable than global stress scores, since they consist of scores across a number of items, rather than a single item score.

10.2.1 Composite job stress and satisfaction and psychiatric morbidity

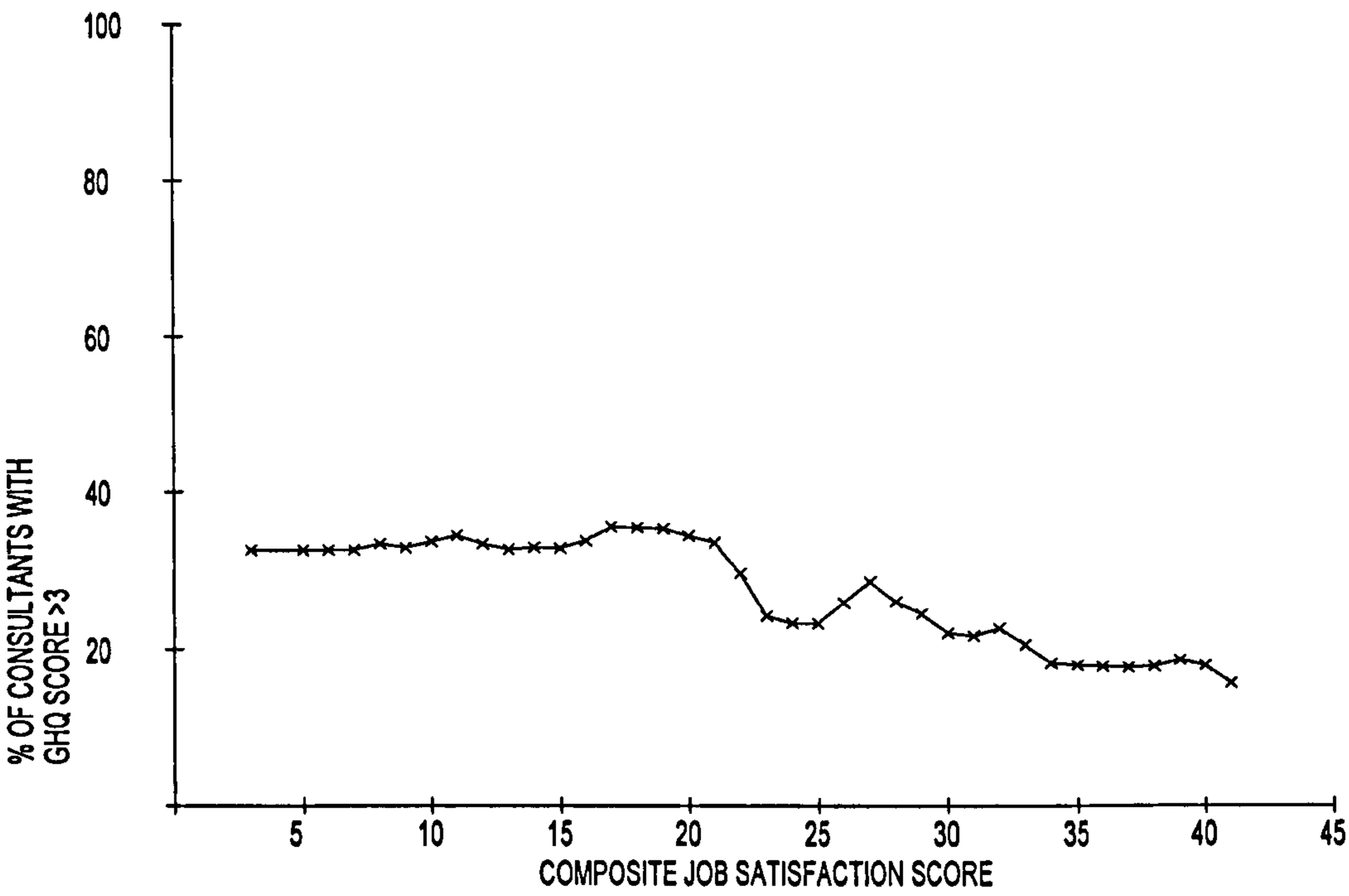
Figure 10.15 shows consultants' composite job stress score plotted against the percentage of consultants with a GHQ score greater than 3, indicating clinically significant psychiatric morbidity. For these composite ratings of job stress and satisfaction the data were subjected to smoothing before the graphs were plotted. This technique calculates data points taking into account not just the data at that point but the other data points around it. It is a technique which can illustrate relationships more clearly in "noisy" data. Note that each cross on the graph does not represent an individual consultant, but is a local average of the surrounding data.

Figure 10.15 shows that the percentage of consultants with psychiatric morbidity increased as composite stress score increased, from under 5% of those with very low stress scores to almost 50% of those with moderate to high stress scores.

Figure 10.15 - *Percentage of consultants with GHQ score >3 according to composite job stress score*

Figure 10.16 shows consultants' composite job satisfaction score plotted against the percentage of consultants with psychiatric morbidity. As composite job satisfaction score increased there was a decrease in the percentage of consultants with psychiatric morbidity, from around 35% of those with low job satisfaction to under 20% of those with high job satisfaction. The differences in the prevalence of psychiatric morbidity between consultants with high and low job satisfaction are less marked using the composite scale than was the case for consultants' global ratings of job satisfaction, though the relationships follow the same pattern.

Figure 10.16 - *Percentage of consultants with GHQ score >3 according to composite job satisfaction score*



As with the global job stress and satisfaction scores, plots were then produced in which consultants with high and low composite job satisfaction scores were represented by separate lines on the graph, in order to see if there were differences in this relationship between job stress and poor mental health according to level of job satisfaction. For composite scores, consultants were split into those with "high" and "low" job satisfaction at the mean score. The mean was used because the data were normally distributed.

Figure 10.17 - *GHQ score and composite stress level for consultants with low and high composite job satisfaction*

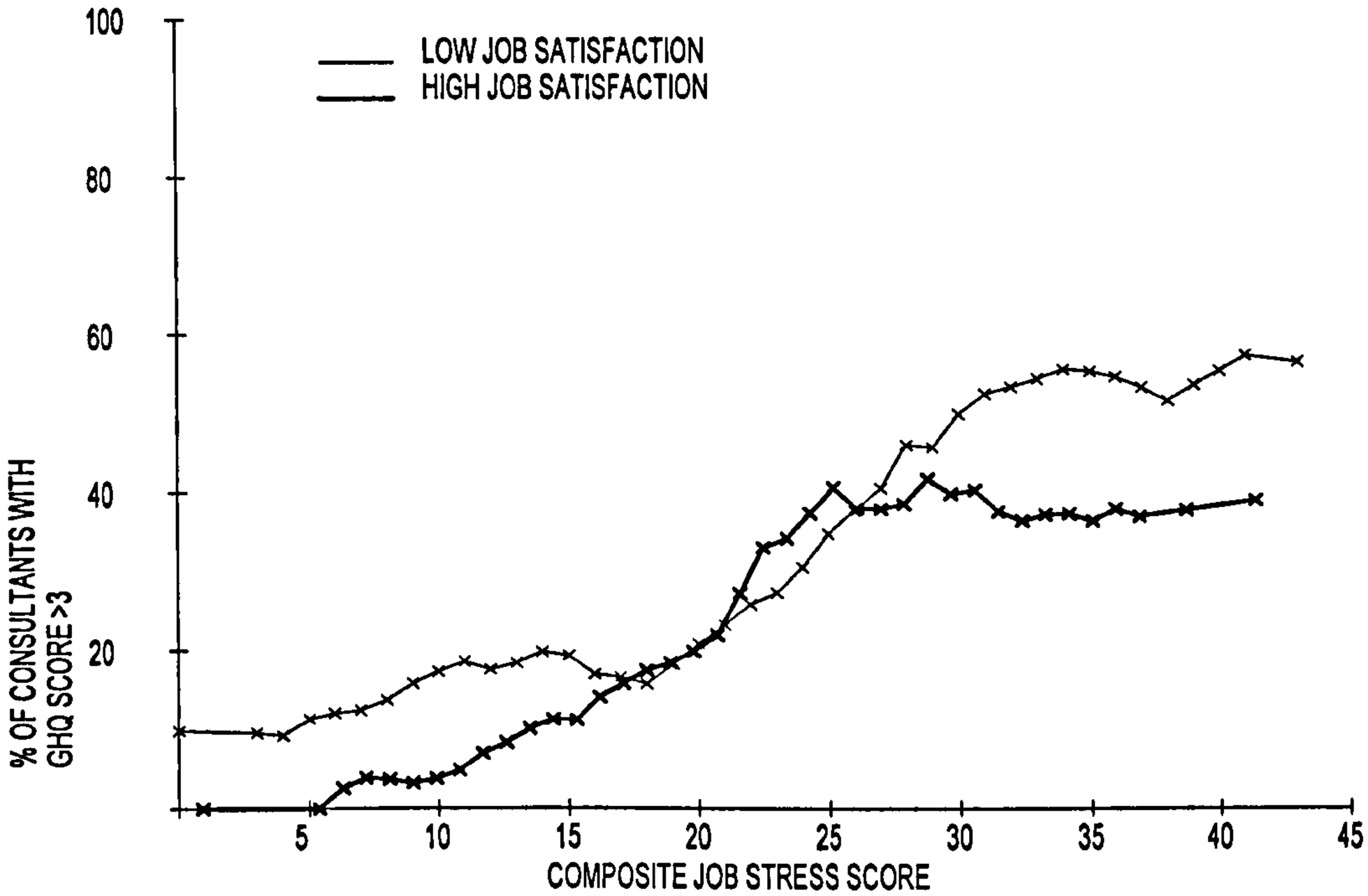


Figure 10.17 indicates that the relationships of job stress with psychiatric morbidity were different for consultants with high vs low job satisfaction. At the same level of stress, a greater number of consultants with low job satisfaction were estimated to have psychiatric

morbidity than those experiencing high levels of satisfaction from their work. This difference in the prevalence of psychiatric morbidity according to level of job satisfaction was apparent among consultants with very low or very high job stress, but not for consultants reporting moderate levels of job stress. The size of the interactive effect was most noticeable for consultants reporting high job stress, where 60% of those with low satisfaction, but only 40% of those whose satisfaction was high, having psychiatric morbidity.

Regression analysis indicated that addition of the interactive effect of job stress and satisfaction on psychiatric morbidity significantly improved prediction of psychiatric morbidity (change in F, $F_{1, 826} = 5.62$, p=0.02). B values indicated for every 1-point increase in composite job stress score GHQ score increased by 0.4 (table 10.4). For every increase in the interaction value GHQ score decreased by 0.01. The smaller magnitude of these changes compared with those found using global ratings of stress and satisfaction is largely due to differences in scales, with composite stress and satisfaction scales ranging from 0-54 and 0-42 respectively compared with 0-5 for the global scales.

Table 10.4 - *Linear regression of composite job stress and satisfaction and an interaction of the two on GHQ score*

	B (95% CI)
Model 1	
Composite job stress	0.2 (0.2, 0.3)
Composite job satisfaction	-0.2 (-0.2, -0.1)
Model 2	
Composite job stress	0.4 (0.3, 0.5)
Composite job satisfaction	0.0 (-0.1, 0.1)
Interaction	-0.01 (-0.01, -0.001)

Overall, the relationships found here were the same as those identified using global measures of job stress and satisfaction. Job satisfaction had a direct negative relationship with psychiatric morbidity (figure 10.16) and also buffered the harmful effect of job stress on psychiatric morbidity (figure 10.17). So consultants with high job satisfaction were less likely overall to have psychiatric morbidity and in addition fewer of those experiencing their work as extremely stressful, but also highly satisfying, had psychiatric morbidity compared with consultants experiencing high stress alongside low job satisfaction.

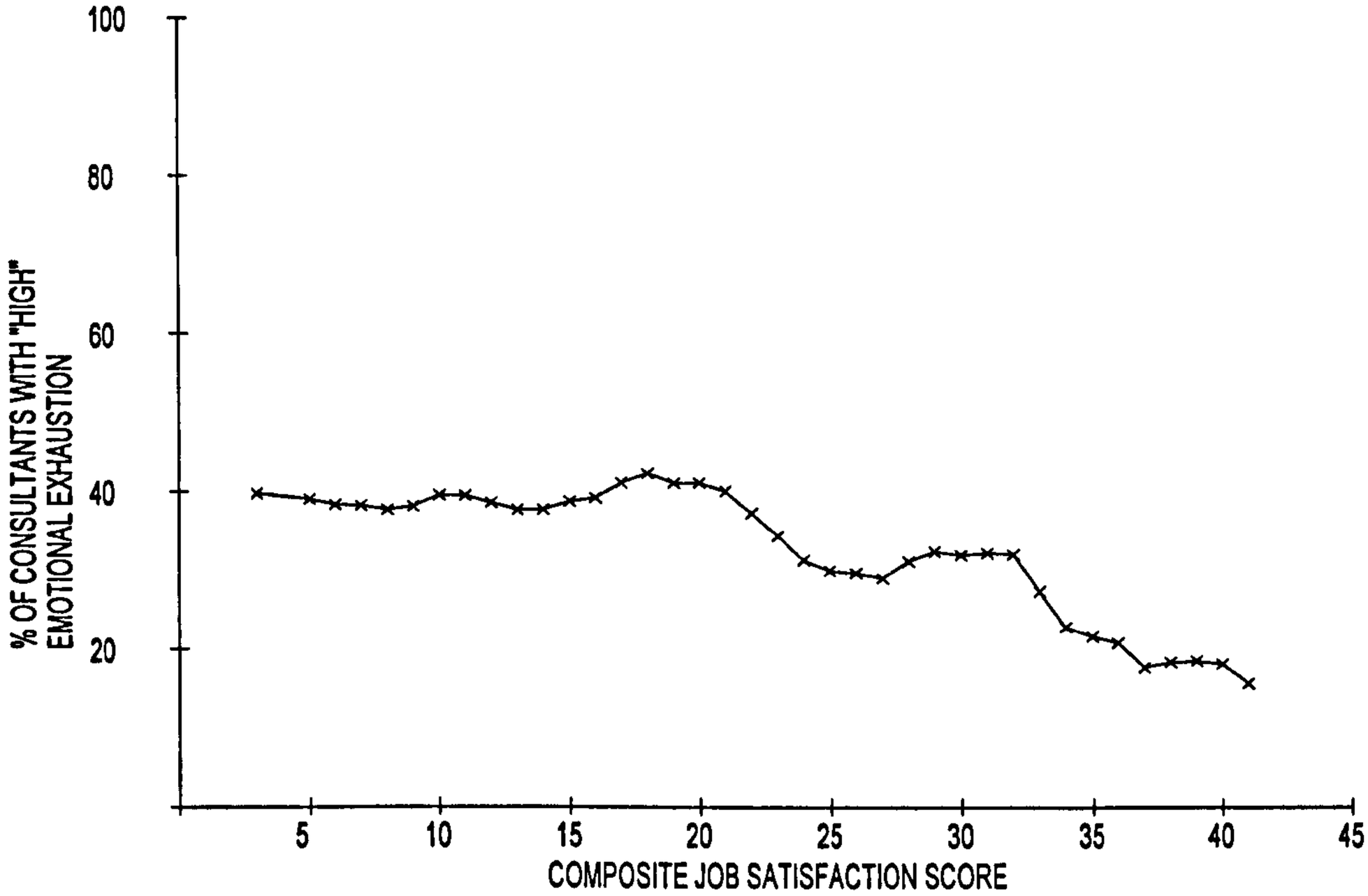
10.2.2 Composite job stress and satisfaction and emotional exhaustion

Moving on to burnout, plotting composite job stress score against the proportion of consultants with emotional exhaustion indicated that as composite job stress score increased, the percentage of consultants with high emotional exhaustion increased (figure 10.18). As with the global job stress scale, this increase was a little greater than was the case than was found using GHQ score: less than 5% of consultants with total a job stress score of less than 10 had high emotional exhaustion, compared with over 60% of those with total job stress scores of 35 or more.

Figure 10.18 - *Percentage of consultants with high emotional exhaustion according to composite job stress score*

Plotting the proportion of consultants with emotional exhaustion against total job satisfaction score indicated an inverse relationship: as total job satisfaction scores increased the percentage of consultants with high emotional exhaustion decreased, from 40% to under 20% (figure 10.19).

Figure 10.19 - *Percentage of consultants with high emotional exhaustion according to composite job satisfaction score*



Again the relationship between job stress and emotional exhaustion was examined separately for consultants reporting "high" and "low" job satisfaction, split at the mean of the composite job satisfaction scale.

Figure 10.20 - *High emotional exhaustion and composite stress level for consultants with low and high composite job satisfaction*

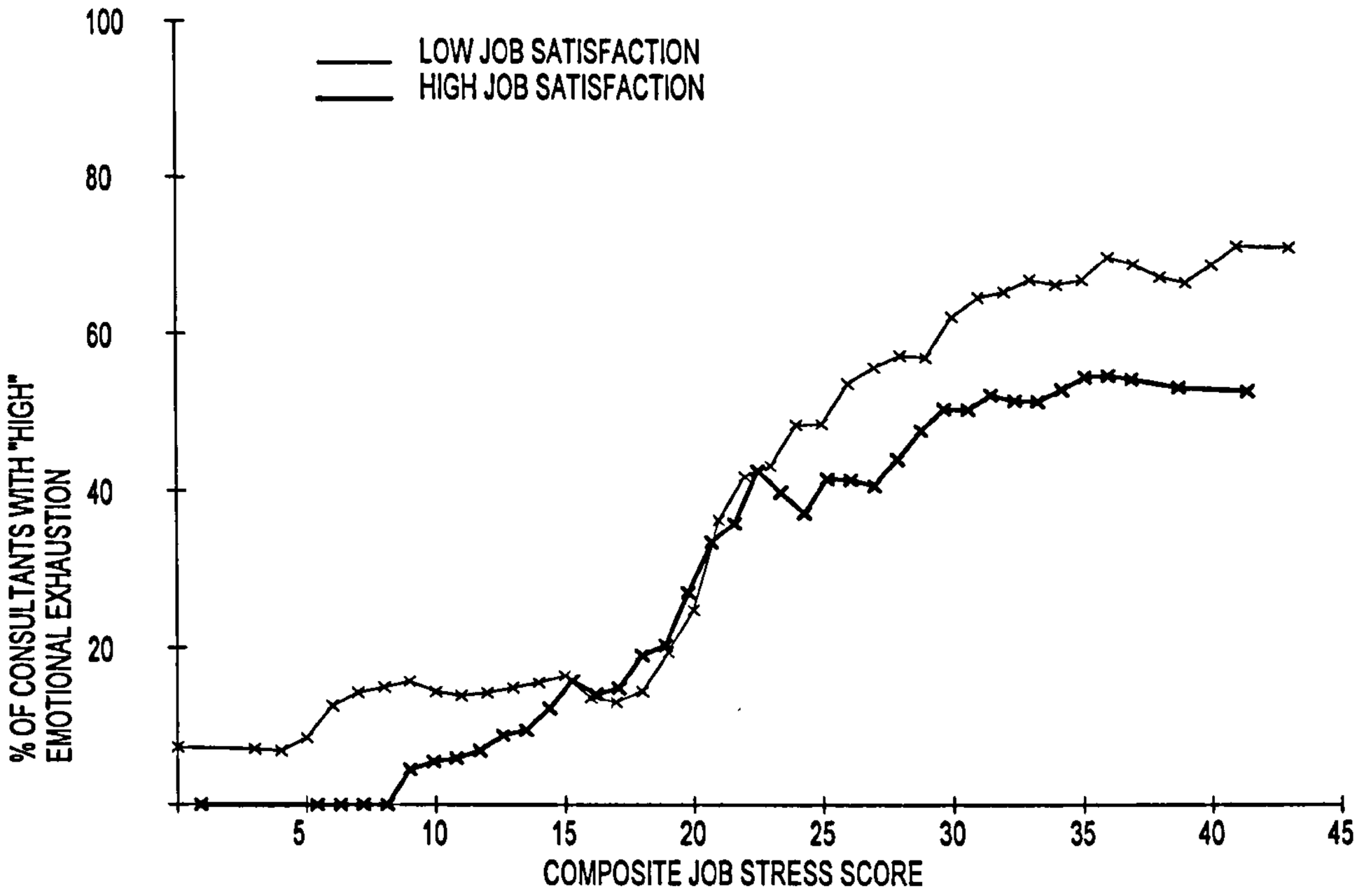


Figure 10.20 shows that job satisfaction appeared to have a protective effect on the relationship between job stress and emotional exhaustion, as was found in the analysis

using consultants' global ratings of their job stress and satisfaction. This effect was visible for consultants who reported very low or very high level of stress in their job, where around 15% more of the consultants with low job satisfaction reported emotional exhaustion than those with high job satisfaction. For consultants reporting moderate levels of job stress there did not appear to be any difference in the prevalence of emotional exhaustion according to the level of job satisfaction. However, regression demonstrated that an interactive effect of job stress and satisfaction on emotional exhaustion was not significant (change in F, $F_{1, 824} = 2.90$, p=0.09), indicating inclusion of an interaction term resulted in no increase in prediction of emotional exhaustion. B values (table 10.5) indicated there was an increase of 0.7 in emotional exhaustion score for each 1-point increase in composite job stress, and a corresponding decrease of 0.3 for each 1-point increase in job satisfaction.

Table 10.5 - *Linear regression of composite job stress and satisfaction and an interaction of the two on emotional exhaustion score*

	B (95% CI)
Model 1	
Composite job stress	0.7 (0.6, 0.8)
Composite job satisfaction	-0.3 (-0.4, -0.2)
Model 2	
Composite job stress	0.9 (0.6, 1.4)
Composite job satisfaction	0.0 (-0.3, 0.2)
Interaction	-0.01 (-0.02, 0.001)

Looking overall at emotional exhaustion, figure 10.20 indicated a different relationship with job stress for consultants with high vs low job satisfaction at some levels of job stress, suggesting a buffering effect of job satisfaction. However, regression indicated this interactive effect did not increase significantly the fit of the model. The relationship of job satisfaction with emotional exhaustion can only be said therefore to be direct, with no additional effect through an interaction with job stress.

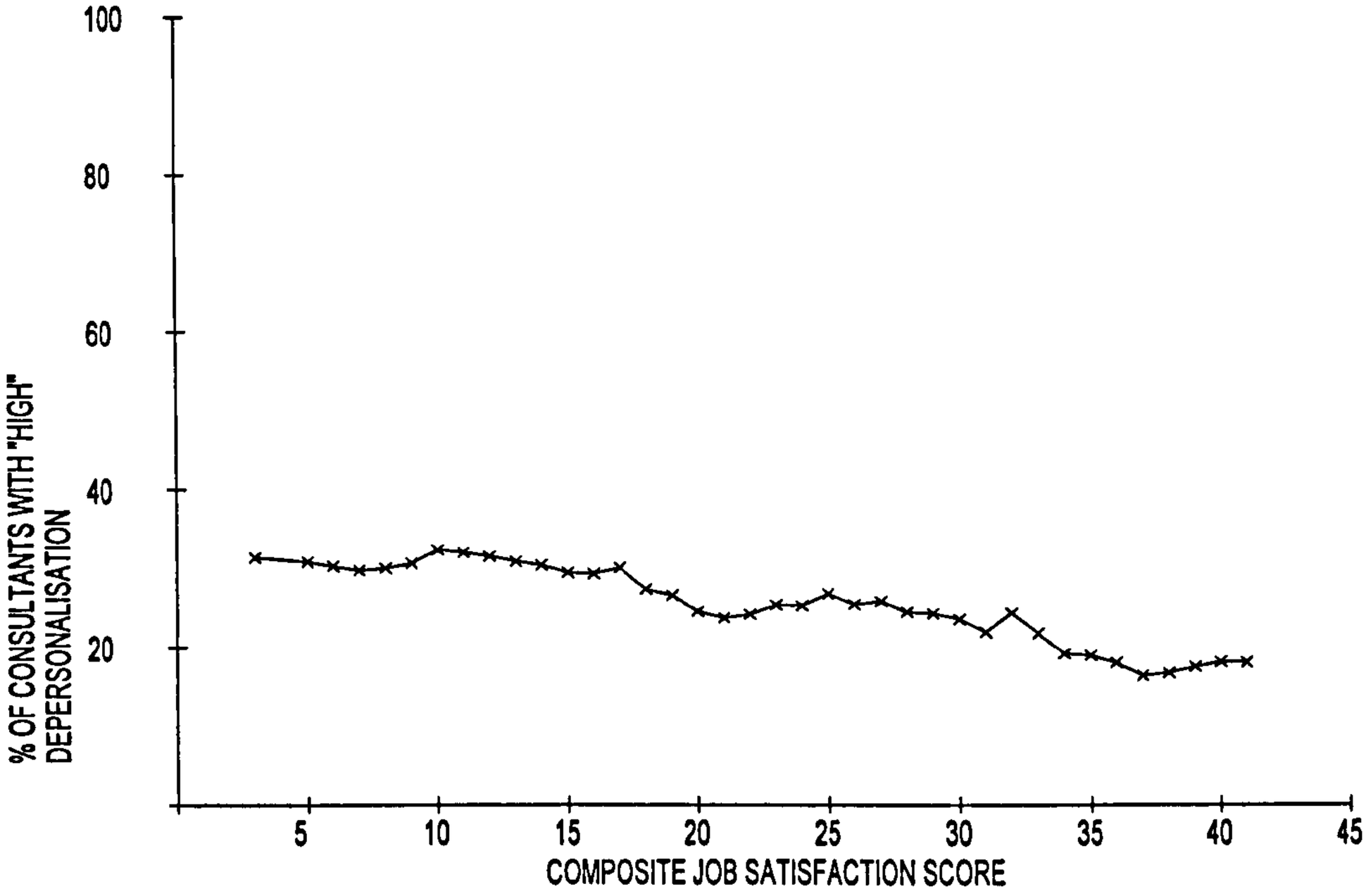
10.2.3 Composite job stress and satisfaction and depersonalisation

As with emotional exhaustion, the percentage of consultants with high depersonalisation increased as their composite stress score increased (figure 10.21), though the change was less pronounced than was the case for emotional exhaustion. Less than 5% of consultants with low job stress had high depersonalisation, compared with 40% of consultants who found their work highly stressful.

Figure 10.21 - *Percentage of consultants with high depersonalisation according to composite job stress score*

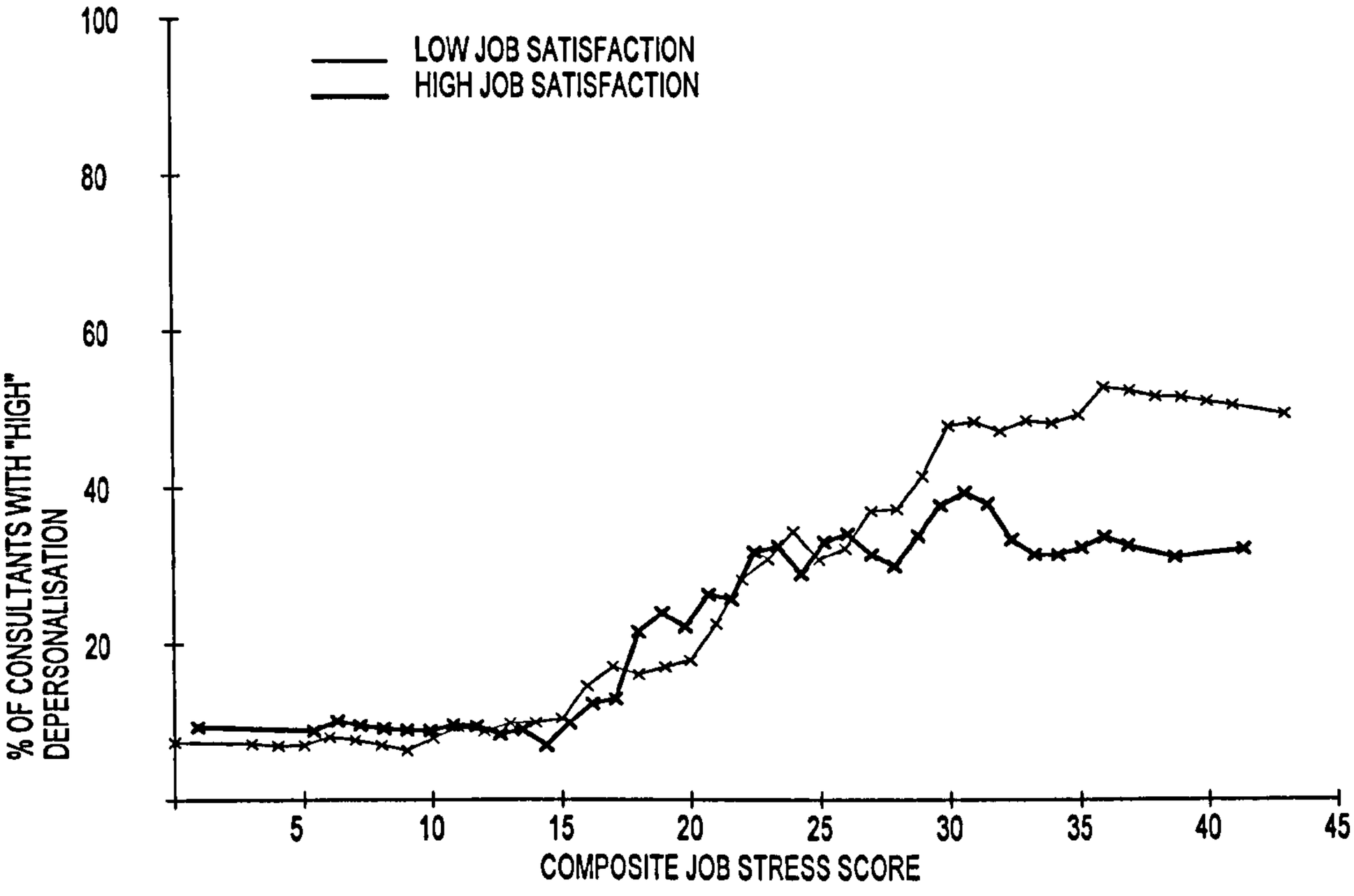
An inverse relationship was found with job satisfaction, in that the percentage of consultants with high depersonalisation decreased as composite ratings of job satisfaction increased . The decrease was small, however, from over 30% to 20%, indicating that again the change was less marked than for emotional exhaustion (figure 10.22).

Figure 10.22 - *Percentage of consultants with high depersonalisation according to composite job satisfaction score*



Separate plots were produced once again for consultants with "high" vs "low" job satisfaction (figure 10.23). These indicated that among consultants with high and low satisfaction the relationship between job stress and depersonalisation was largely the same. A difference was apparent only among consultants experiencing high levels of stress from their work, among whom a smaller percentage with high than low job satisfaction had high depersonalisation (50% vs 30%).

Figure 10.23 - *High depersonalisation and composite stress level for consultants with low and high composite job satisfaction*



Regression indicated that an interactive effect of job stress and satisfaction on depersonalisation was not significant (change in F, $F_{1, 824}$ = 1.58, p=0.2), so again there was no additional explanation of depersonalisation as a result of its inclusion. B values indicated that for a 1-point increase in job stress depersonalisation score increased by 0.2 while a 1-point increase in job satisfaction was associated with a very small decrease in depersonalisation (0.01) (table 10.6).

Table 10.6 - *Linear regression of composite job stress and satisfaction and an interaction of the two on depersonalisation score*

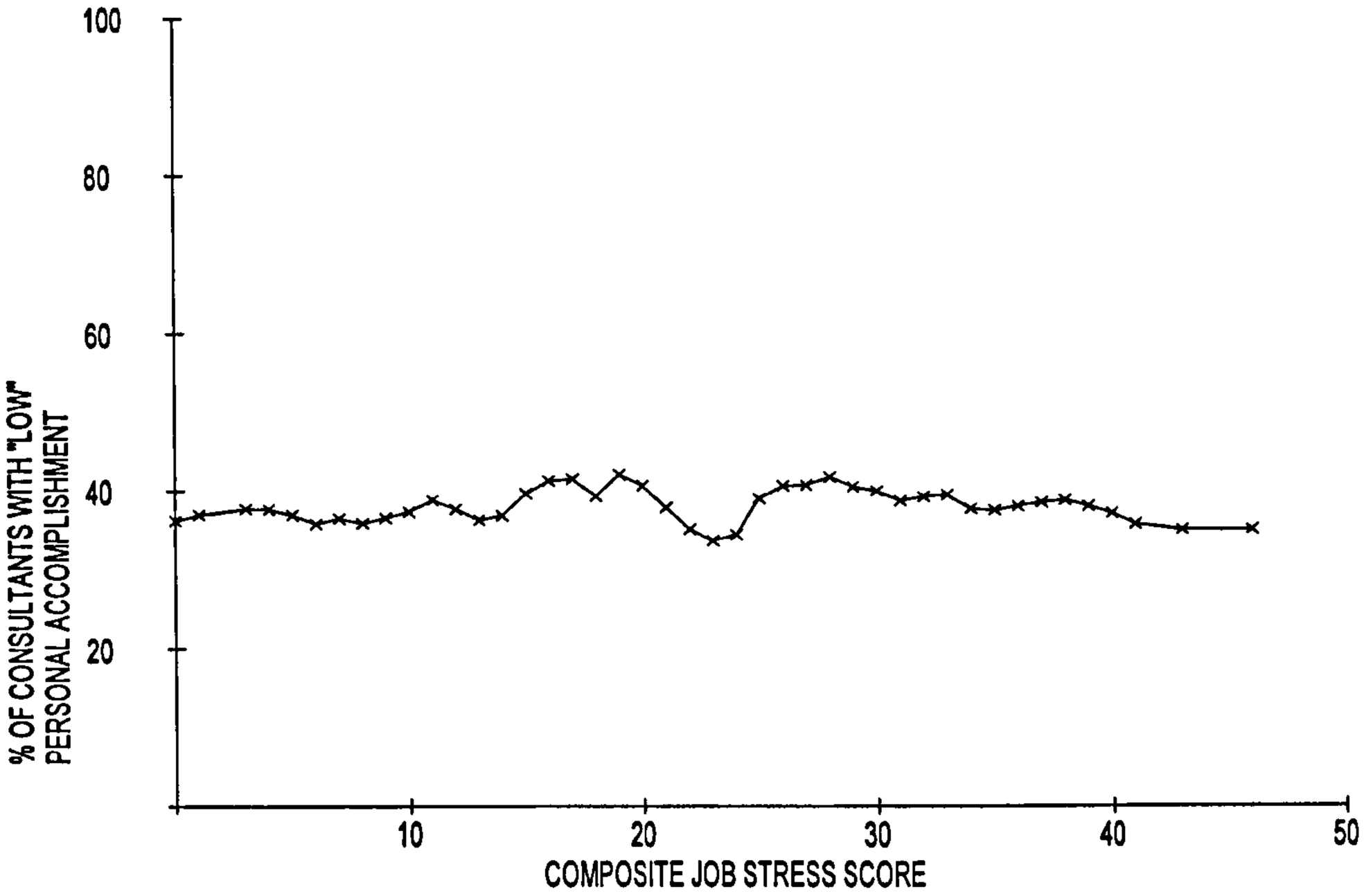
	B (95% CI)
Model 1	
Composite job stress	0.2 (0.15, 0.23)
Composite job satisfaction	-0.01 (-0.13, -0.03)
Model 2	
Composite job stress	0.3 (0.14, 0.44)
Composite job satisfaction	0.0 (-0.14, 0.16)
Interaction	0.0 (-0.01, 0.002)

Although figure 10.23 suggested there may be a buffering effect of job satisfaction on the relationship between job stress and depersonalisation among consultants experiencing high levels of stress from their work, such an effect was found not to be statistically significant overall. Job satisfaction had a small direct relationship with depersonalisation, whereby those with high job satisfaction are less likely than those with low job satisfaction to treat patients in an uncaring, unfeeling way, but there is no additional relationship through a buffering effect on job stress.

10.2.4 Composite job stress and satisfaction and personal accomplishment

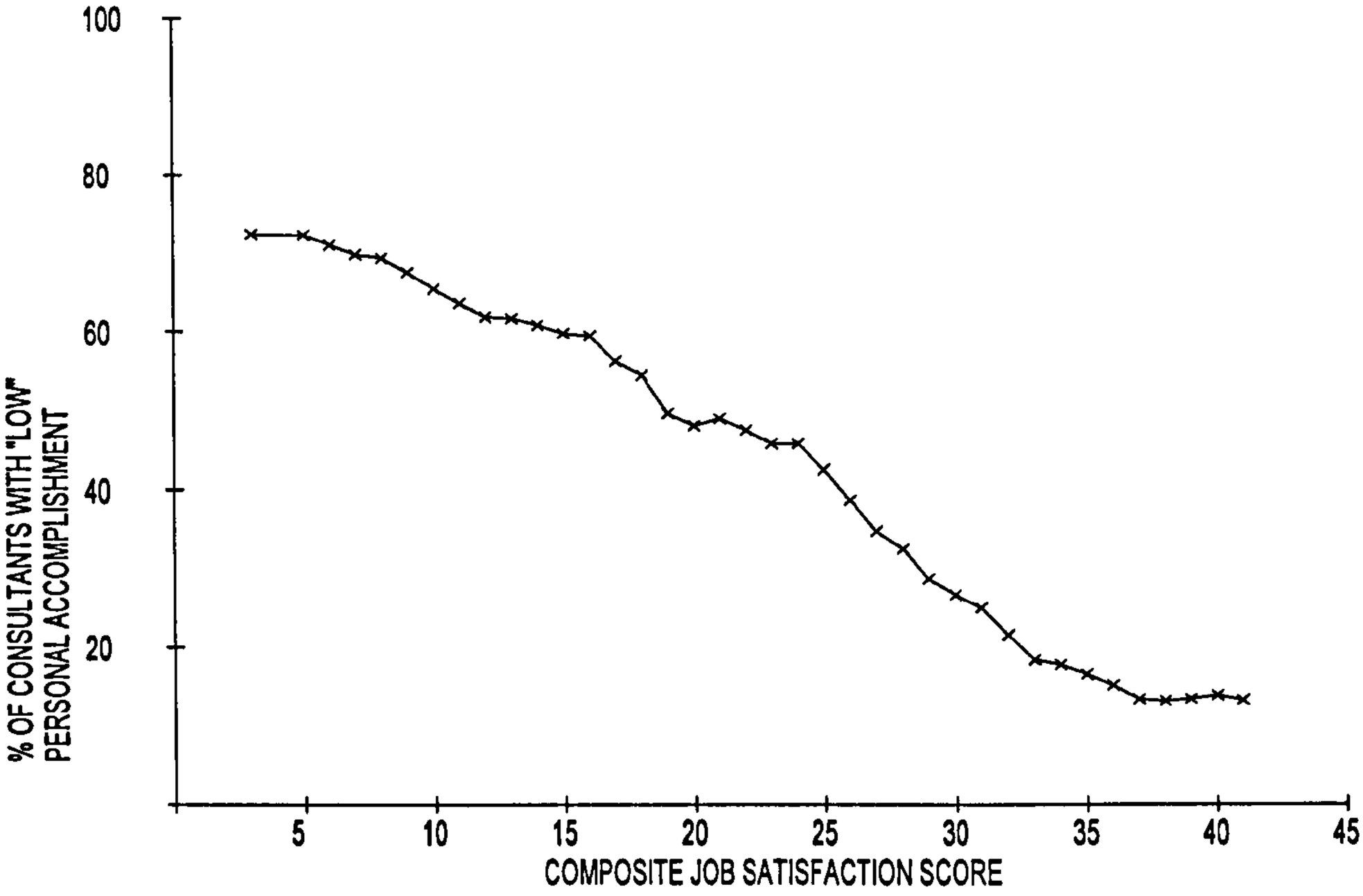
As was found with the analysis using global ratings of job stress and satisfaction, the percentage of consultants reporting low personal accomplishment did not vary at all according to the level of stress they experienced at work, as assessed by their composite stress score (figure 10.24).

Figure 10.24 - *Percentage of consultants with low personal accomplishment according to composite job stress score*



The percentage of consultants with low personal accomplishment decreased markedly as consultants' composite job satisfaction score increased, from around 75% of those with low job satisfaction to 10% of those with high satisfaction (figure 10.25).

Figure 10.25 - *Percentage of consultants with low personal accomplishment according to composite job satisfaction score*



The lack of a relationship between job stress and personal accomplishment meant it was not feasible to examine any potential buffering effect of job satisfaction on this relationship. As was found using global ratings, however, the direct association was marked. Consultants who derived high levels of satisfaction from their work were simply more likely than those with low job satisfaction to report high a level of personal accomplishment.

These analyses based on consultants' composite job stress and satisfaction scores broadly demonstrated the same pattern of relationships between job stress and satisfaction and consultants' mental health as were found using global stress and satisfaction ratings. The higher consultants' composite job stress score the greater the likelihood that he or she would be estimated by the instruments used here to have psychiatric morbidity or burnout. The higher consultants' composite job satisfaction score the lower their likelihood of having psychiatric morbidity or burnout. Again, in addition to these direct relationships, a buffering effect of job satisfaction on the harmful effect of job stress on consultants' mental health was found to exist, but only for psychiatric morbidity. Although there were some indications of buffering for the emotional exhaustion and depersonalisation dimensions of burnout, these effects were not statistically significant.

Looking at the levels of stress and satisfaction at which the buffering relationship was in evidence, it was certainly the case that consultants with very high job satisfaction appeared to experience the greatest buffering effect of job satisfaction on the relationship between job stress and poor mental health. This was clearly seen in the analyses using both global and composite ratings of job stress and satisfaction, for psychiatric morbidity, emotional exhaustion and depersonalisation. In the analyses using global job stress and satisfaction ratings, a buffering effect was also seen at moderate job satisfaction levels, though less strongly, particularly for psychiatric morbidity and emotional exhaustion. An effect at moderate job satisfaction levels was not seen in the analyses using composite ratings. Since the composite ratings are judged to be more robust assessments of the stress and satisfaction consultants experienced in their work than the more subjective global ratings, it is perhaps prudent from these data to conclude that a buffering effect of job satisfaction occurs only for those consultants reporting very high job satisfaction. As to the level of stress it is possible to buffer, it is at high levels of stress at which the buffering effect is most clearly seen, which suggests it is those consultants experiencing their work as highly stressful for whom deriving satisfaction from their work, in spite of its challenging nature, is most important for their mental health.

10.3 Exploratory model of the relationships between consultants' poor mental health and job stress and satisfaction

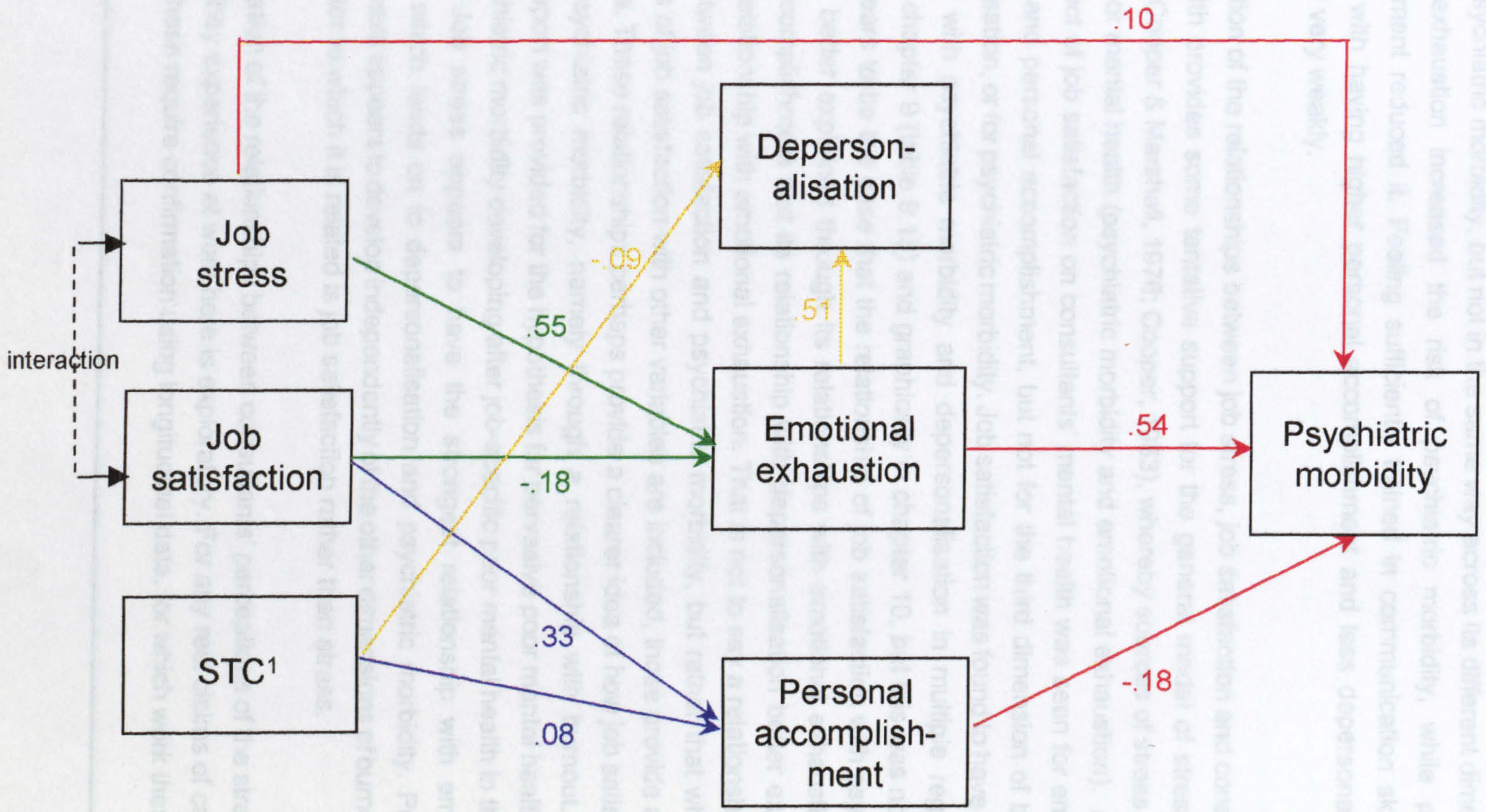
Linear regression analysis was used with the aim of providing a broader overview of the pattern of relationships of the different mental health outcomes with each other and of the relationships of job stress and satisfaction with these. A general model of stress, whereby sources of stress at work result in stress outcomes in the form of poor mental health, was used to guide this analysis (Cooper & Marshall, 1976; Cooper, 1983). Further, pervasive poor mental health in the form of psychiatric morbidity was hypothesised as occurring subsequent to job-specific poor mental health in the form of burnout (Leiter & Durup, 1994; Meier, 1984). Composite scores for job stress and satisfaction were used in preference to consultants' global ratings of these, since they are more objectively grounded in the organisational environment, and therefore less likely to produce trivial

associations through overlap in the content of the mental health measures (Frese & Zapf, 1988). For the mental health indicators, consultants' total scores on each of the burnout scales of the MBI and total GHQ scores were used. Perceived sufficiency of training in communication skills is scored 0/1 representing insufficient/sufficient. Four separate linear regressions were carried out, one for each of the four mental health outcomes, as specified below: Psychiatric morbidity, hypothesised to develop subsequent to burnout, was examined as the dependent variable in the first regression, with scores on the burnout subscales included as potential predictor variables. Emotional exhaustion, conceptualised as the core element of burnout, was included as a potential predictor of personal accomplishment and depersonalisation, and was itself examined as a dependent variable in the final regression analysis.

Dependent variable	Independent variables
Regression 1 Psychiatric morbidity (GHQ score)	Emotional exhaustion score Depersonalisation score Personal accomplishment score Job stress score Job satisfaction score Sufficient communication skills training Sufficient management skills training
Regression 2 Personal accomplishment score	Emotional exhaustion score Depersonalisation score Job stress score Job satisfaction score Sufficient communication skills training Sufficient management skills training
Regression 3 Depersonalisation score	Emotional exhaustion score Job stress score Job satisfaction score Sufficient communication skills training Sufficient management skills training
Regression 4 Emotional exhaustion score	Job stress score Job satisfaction score Sufficient communication skills training Sufficient management skills training

An illustration of the relationships found is shown in figure 10.26. Arrows between variables indicate hypothesised causal relationships for which associations were indeed found to exist by the regression analyses. Only significant relationships are shown. Different coloured lines are used to represent the four separate regressions carried out for each mental health endpoint. The red lines indicate the variables found to be significantly associated with psychiatric morbidity, blue for personal accomplishment, green for emotional exhaustion and yellow for depersonalisation. Standardised beta weights indicate the size and direction of the relationships. Language indicating causality will be used in describing the relationships, while it is acknowledged that relationships between these variables can only be hypothesised as being causal. The dotted line between job stress and job satisfaction indicates the interaction found in the earlier analyses between these two variables.

Figure 10.26: Illustration of the relationships between job stress, job satisfaction, burnout, psychiatric morbidity and training



[1] Sufficient training in communication skills

Job stress appeared to have a causal role in the development of emotional exhaustion and psychiatric morbidity, being moderately associated with emotional exhaustion, and rather more weakly associated with psychiatric morbidity. Job satisfaction was associated with burnout, in that it reduced the likelihood of emotional exhaustion developing and was associated with an increased likelihood of having high personal accomplishment. Job satisfaction was not associated directly with psychiatric morbidity. Emotional exhaustion appeared to be the core aspect of burnout, leading on to depersonalisation. Burnout predicted psychiatric morbidity, but not in the same way across its different dimensions: emotional exhaustion increased the risk of psychiatric morbidity, while personal accomplishment reduced it. Feeling sufficiently trained in communication skills was associated with having higher personal accomplishment and less depersonalisation, though only very weakly.

This illustration of the relationships between job stress, job satisfaction and consultants' mental health provides some tentative support for the general model of stress found elsewhere (Cooper & Marshall, 1976; Cooper, 1983), whereby sources of stress at work result in poor mental health (psychiatric morbidity and emotional exhaustion). A direct positive effect of job satisfaction on consultants' mental health was seen for emotional exhaustion and personal accomplishment, but not for the third dimension of burnout, depersonalisation, or for psychiatric morbidity. Job satisfaction was found to have a direct relationship with psychiatric morbidity and depersonalisation in multiple regression analyses in chapter 9 (table 9.18) and graphically in chapter 10, but this was not found here. It appears to be the case that the relationship of job satisfaction with psychiatric morbidity is better explained through its relationships with emotional exhaustion and personal accomplishment and its relationship with depersonalisation better explained through its relationship with emotional exhaustion. That is not to say a relationship does not exist between job satisfaction and psychiatric morbidity, but rather that when the relationships of job satisfaction with other variables are included, those provide a better fit to the data. These relationships perhaps provide a clearer idea of how job satisfaction relates to psychiatric morbidity, namely through a relationship with burnout. Some tentative support was provided for the hypothesis for pervasive poor mental health in the form of psychiatric morbidity developing after job-specific poor mental health in the form of burnout. Job stress appears to have the strongest relationship with emotional exhaustion, which leads on to depersonalisation and psychiatric morbidity. Personal accomplishment appears to develop independently of the other dimensions of burnout and the work factor to which it is related is job satisfaction rather than stress.

This examination of the relationships between consultants' perceptions of the stress and satisfaction they experience at work here is exploratory. For any real claims of causality to be made these require confirmation using longitudinal data, for which work these data

provide an interesting starting point.

CHAPTER 11: Discussion

This research was carried out to investigate aspects of their work hospital consultants perceive as stressful and satisfying, to assess their prevalence of psychiatric morbidity and burnout, and to explore the relationships between job stress and satisfaction and these indicators of consultants' poor mental health. The sample comprised surgeons, gastroenterologists, radiologists and oncologists, chosen to represent some of the different work demands experienced by hospital consultants.

Preliminary work involved in-depth interviews with a small sample of consultants to derive detailed data on sources of stress and satisfaction arising form their work. Interviews with 21 consultants identified 25 sources of job stress and 17 sources of job satisfaction important for consultants across the four different specialties. From this, instruments to assess sources of job stress and satisfaction among hospital consultants were developed.

The main study comprised a cross-sectional questionnaire survey to examine the importance of these identified sources of stress and satisfaction for hospital consultants nationally and to assess the prevalence of psychiatric morbidity and burnout in this occupational group. Eight hundred and eighty two out of 1133 consultants returned questionnaires (78%). The representativeness of the consultant sample with reference to demographic characteristics could not be evaluated, owing to the unavailability of such data for non-responders from alternative sources, but again the good response rate enhances the representativeness of these data.

Twenty-seven per cent of the sample were estimated to have psychiatric morbidity and approximately one third had symptoms indicative of burnout. Principal components analysis of consultants' ratings of the importance of the sources of job stress indicated four stress factors were predominant for consultants currently: work overload and its effect on home life, poor management and resourcing, having managerial responsibilities, and dealing with patients' suffering. Regression analysis indicated experiencing stress from these aspects of work was associated with psychiatric morbidity and burnout. Three predominant sources of job satisfaction were identified in the same way: deriving interpersonal satisfaction, having opportunities for personal and professional development, and feeling well managed and resourced. Consultants' mental health was more strongly related to these sources of job stress and satisfaction than to consultants' demographic or work factors (for example, working full- vs part-time). Consultants experiencing high levels of satisfaction overall from the performance of their role were less likely than those deriving little or no satisfaction to have psychiatric morbidity and burnout, and in addition, were more able to tolerate a high level of stress without developing psychiatric morbidity.

11.1 The Consultants' Job Stress and Job Satisfaction Questionnaires

For this research, questionnaires were developed specifically to assess sources of job stress and satisfaction for hospital consultants. These were the 25-item Consultants' Job Stress Questionnaire and the 17-item Consultants' Job Satisfaction Questionnaire. Through being based on the experiences of a sample of consultants currently in post, these questionnaires would provide far richer data on the specific aspects of work perceived by consultants as contributing to their job stress and satisfaction than an existing off-the-shelf instrument designed for broader applicability across a range of jobs.

The question arises as to how representative the items in the Consultants' Job Stress and Satisfaction Questionnaires are of sources of stress and satisfaction at work for UK hospital consultants as an occupational group. Certainly it is possible that the items are to a degree specific to the four specialties involved in their development and less relevant to consultants working in other specialties. One factor which argues against this is that there was considerable overlap across the specialties in the items to which they gave a high endorsement during the interview stage of the development of the questionnaires. This indicated that there are many aspects of the role of consultant which are experienced as contributing significantly to stress and satisfaction consistently across all four of these specialties.

But how representative of consultants generally are these four specialist groups? As already described, the specialties chosen were diverse, in order to be representative of some of the different demands made of hospital consultants generally. Certainly they were representative of other specialties. For example, obstetrics-gynaecology and accident and emergency are examples of other specialties (in addition to surgery and gastroenterology) with direct patient responsibility. Other specialist groups, such as haematology, have a clinical support role in addition to radiology, and all consultants will have a proportion of patients whose disease is incurable and who die, though the proportion is relatively greater among oncologists. There is a possibility, however, that there are some specialties for whom the items in these questionnaires may be less relevant, such as psychiatrists, where the focus is on mental rather than physical health, and specialists who do not work directly with patients, such as those in public health medicine.

How robust were the procedures used to select items for inclusion in the questionnaires? The approach taken in the choice of procedure to use to determine the inclusion of items was to identify which of the potential sources of stress and satisfaction are important currently for UK hospital consultants. Here a mean rating of one or more was used, to indicate that, across the sample, an item was rated by consultants on average as contributing at least "a little" to job stress or satisfaction". The implication of using the

mean score was that one consultant, who may be representative of a particular group of consultants, such as those who are young and female, may have rated an item as contributing a lot to their job stress. But if that item was rated by all other consultants as contributing not at all to their job stress, the mean score for that item would be less than one and that item would not be included. It is recognised that the process used here will not have resulted in the inclusion of idiosyncratic sources of stress. But since the aim of this process was to identify aspects of work experienced as sources of stress and satisfaction by consultants broadly, this particular method of selecting items for inclusion was appropriate.

The high response rate in the main questionnaire survey and low level of missing data indicated the Consultants' Job Stress and Satisfaction Questionnaires were acceptable to consultants to complete.

11.2 Sources of job stress and satisfaction for hospital consultants

Sources of stress

Of the 25 sources of stress in the Consultants' Job Stress Questionnaire, the aspect of work consultants rated as contributing the most their overall job stress was having too great an overall volume of work, which was endorsed by 75% of consultants. In fact, the top four most highly rated sources of stress related to work overload, namely having to conflicting demands on one's time, having to spend long hours at work and feeling under pressure to meet deadlines. After work overload, it was structural/organisational aspects of work which contributed the next most highly to consultants job stress. Specifically, these sources of stress related to having inadequate staff and facilities to do a good job and having to take on increasing managerial responsibilities. Perhaps surprisingly, consultants reported experiencing relatively low levels of stress from their interactions with patients, in the form of dealing with patients' emotional distress and physical suffering.

Principal components analysis of the 25 sources of stress identified four underlying stress factors on which 18 of the stress items loaded. Principal components analysis as a technique has been criticised, since the degree of subjectivity involved in producing a solution can result in different researchers producing quite different solutions from the same data. In the current analysis, examination of correlations between stress items suggested the likely presence of underlying factors and therefore that the data were highly suitable for principal components analysis. In examining the solution produced, the sources of stress were for the most part highly specific in their loading on to one of these factors, and each factor had a minimum of four items loading on to it, suggesting this solution was robust. For these reasons it is less likely that another researcher would have produced a fundamentally different solution. Factor scores indicated that work overload was the factor perceived as contributing the most to consultants overall job stress, with

the other three factors: feeling poorly managed and resourced; having managerial responsibilities; and dealing with patients' suffering contributing a similar extent to each other, and relatively less than overload. Consultants reported having to deal with patients' suffering as the factor which contributed the least of these four to their job stress, by a small margin.

One other detailed examination of sources of stress for consultants has been carried out, this time for Scottish consultants (Agius *et al.*, 1996). A four factor solution again was judged best to represent 25 sources of stress. As in the current study, the factor rated as contributing the greatest amount to the Scottish consultants' overall job stress was work overload, including the impact of overload on home life. The second most important factor was described as organisational constraints, which, again as in the current study, included issues regarding insufficient resourcing and the interference of non-health professionals in consultants' work. Two other factors contributed relatively less to consultants stress than overload and organisational constraints. The first concerned issues to do with working with patients, including coping with their suffering, caring for their emotional needs, dealing with difficult patients and relatives and the threat of litigation. The least highly rated factor comprised issues relating to the personal confidence of consultants, including keeping up with new developments, peer group pressure, and the need to derive intellectual and educational growth.

Comparison of the factors across the two studies indicated that very similar aspects of work were identified as important sources of job stress for consultants. It was only on one factor that there was divergence, with consultants' increasing managerial responsibilities being highlighted in the current study, while issues concerning personal confidence arose for the Scottish consultants. The difference appeared to result from differences across the studies in the pools of items from which the factors were derived, with the items which loaded on to the personal confidence factor in the Scottish study not being generated in the current national study, and those relating to increasing managerial responsibilities not being generated in the Scottish study. The consultant samples from which the items were developed were small (21 and 26 respectively in the current and the Scottish studies) relative to the size of the consultant samples who completed the questionnaires, and variability resulting from this is probably the most likely cause of the difference found across the studies in the items generated. It should be noted that the difference appeared among items rated as relatively less important contributors to consultants' overall stress in the two studies.

Another study, this time of consultants from a single specialty - anaesthetics - again found organisational issues to be important stress factors arising from a pool of stress items derived from interviews with consultants (Cooper *et al.*, 1999). Two organisational issues

were identified as sources of stress, the first concerned communication and control and the second resourcing, training and maintaining standards. Two other stress factors rated as relatively less important by the anaesthetists concerned working with patients/daily demands and issues of accountability, such as legal issues.

Looking at how the data from the current study sit with studies of doctors more broadly, as described in chapter 2, other studies have consistently reported work overload to be the predominant source of stress for doctors at all levels (Agius *et al.*, 1996; Richardsen & Burke, 1991; Firth-Cozens, 1987; Burke & Richardsen, 1990). There is some evidence that consultants' workload is indeed high and is increasing. An investigation of medical staffing and workload in clinical radiology in the UK reported that workloads in radiology have increased far more rapidly over the past 20 years than the expansion in consultant posts (Royal College of Radiologists, 1993). A small sample qualitative study of consultants' perceived and actual workload found more than 90% of the sample perceived there to have been an increase in clinical activity over the previous five years (Mulholland & Muir, 1998). This they experienced as having been caused largely by the development of new investigations and repeated treatment of chronically ill and elderly patients whose health deteriorated on their return to the community, as well as other issues such as the reduction in junior doctors' hours, having a greater administrative and managerial load, and increased patient expectations. Recorded admissions over the same time period in the hospitals in which these consultants worked had increased by 59%. As one consultant put it succinctly, *"I'm doing work which I love - it's just that there's too much of it."* (Mulholland & Muir, 1998; p582).

The consultants in Mulholland's study worked an average of 60 hours a week, ranging from 43 to 91 hours, and indications were found that a number of the consultants were planning to retire early. Evidence that an increasing number of consultants are taking early retirement has been found more widely (Medical Workforce Standing Advisory Committee, 1997). Medicine has been for many doctors a vocation rather than just a job, and many doctors have continued to be involved in medical work some years into retirement. This increase in the numbers choosing to retire early can be seen therefore as something of a sea change in the way in which doctors are experiencing their profession. The causes of this are unknown, but it seems reasonable to believe that a workload which as become intolerably high may be a factor in at least some of these decisions. Rather worryingly, in light of the increase in consultants' early retirement, another study has found a reluctance among junior doctors to take on the consultant role because of the work pattern with which consultants are perceived as having to contend (Baldwin, Newton, Buckley, Roberts, & Dodd, 1997).

Organisational issues, identified as sources of stress in the current study, as well as in

other studies of consultants (Agius *et al.*, 1996; Cooper *et al.*, 1999), have not been widely reported in other studies of doctors as sources of job stress, with the exception of practice management issues for GPs (Cooper *et al.*, 1989). Other studies largely focus on doctors at a more junior level and it appears likely that organisational issues may impact to a far greater extent on consultants, who are likely to have a role in the management of their team, unit or institution. The historical lack of research on consultants may explain why these issues have not been identified previously as prominent sources of stress for doctors. The relatively low ratings given to patient-care issues as sources of stress in this study may arise again from the seniority of the participant group, since consultants may be more at ease and confident in their interactions with patients than junior doctors, simply through their greater experience. It should be noted that although patient-care issues were experienced as contributing relatively little to consultants overall job stress, they were nevertheless still a source of stress to some extent.

There were some differences in the extent to which the four specialty groups experienced stress from the factors identified in the current study. Perhaps not surprisingly, it was the two acute, front-line specialty groups, gastroenterologists and surgeons, who reported the greatest stress from work overload and its effect on home life. Oncologists and radiologists, whose workload, although heavy, tends to be a little more controllable, reported relatively less stress from this factor. All four specialist groups, however, perceived this as the factor in their work which contributed by far the most to their overall job stress. Regarding the factor feeling poorly managed and resourced, radiologists reported experiencing slightly more stress from this than gastroenterologists and oncologists. Radiologists rated dealing with patients' suffering as contributing relatively less to their overall job stress than the other three specialist groups. This is again perhaps to be expected, since radiologists do not have clinical responsibility for patients care. Radiologists predominantly carry out diagnostic tests on patients at the request of consultants from other specialties and the results of these tests are in general communicated back to the patient by the referring specialist rather than the radiologist. Technological advances, such as the introduction of the Breast Screening Service, interventional radiology, magnetic resonance imaging, alongside the more general rise in consumerism, are likely to result in a number of changes in the radiologists' role. As this continues radiologists may have to deal in the future with greater demands in terms of their responsibility for and involvement in patient care.

Sources of satisfaction

Of the 17 sources of satisfaction in the Consultants' Job Satisfaction Questionnaire, having good relationships with patients was the aspect of work rated by consultants as contributing the most to their overall job satisfaction. Having good relationships with other staff members and being perceived to do the job well by colleagues were also important

contributors to consultants' job satisfaction, along with the variety of consultants' role and the amount of responsibility they held. Relatively few consultants reported deriving satisfaction from having adequate facilities and resources to do a good job, in comparison with these other aspects of work.

Principal components analysis identified three more general underlying sources of satisfaction within these data, on which 14 of the 17 sources of satisfaction were found to load. As with the analysis of sources of stress, examination of correlations between satisfaction items had suggested the likely presence of underlying factors. The solution comprised highly specific loadings of items on to factors, with the exception of one item, and each factor had at least four items loading on to it, suggesting the solution was robust.

The factor which contributed the most to consultants' job satisfaction was deriving interpersonal satisfaction, from having good relationships with patients, their relatives, and other staff members, as well as being perceived to do the job well by colleagues and having a high level of responsibility. The next most highly rated factor was having opportunities for personal and professional development, and the least satisfaction was experienced from feeling well managed and resourced. No other studies have yet been carried out to identify sources of job satisfaction systematically among UK hospital consultants, but studies of doctors generally report some similar findings. Interactions with patients are widely described as the most satisfying aspect of doctors' work (Bates, 1982; Clarke *et al.*, 1984; Richardsen & Burke, 1991) and relationships with fellow-workers have been described as important sources of satisfaction by consultants and junior house officers (Kapur *et al.*, 1998) and GPs (Cooper *et al.*, 1989; Makin *et al.*, 1988). GPs have also reported deriving satisfaction from their high level of responsibility (Cooper *et al.*, 1989). As sources of job satisfaction, those identified here relating to personal and professional development opportunities, together with management and resourcing, have not appeared elsewhere in the literature, and it is possible they may be specific to doctors of consultants' level of seniority. Poor management and insufficient resourcing were described also in this study as aspects of work which contribute to consultants' stress, indicating a these organisational insufficiencies are having a two-fold impact on the work experiences of hospital consultants.

Feeling well managed and resourced and having opportunities for personal and professional development are concerned to a degree with having effective control over one's job. The occupational research of Karasek (1979) has shown that for individuals involved in jobs with high demands such as medicine, the amount of discretion a person has over his/her work is an important determinant of mental health (Karasek, 1979). In other words the high demands of medicine may become intolerable if control over work

and autonomy in decision-making is removed. Until recently medicine has been a profession with high job demand in terms of overload and high job discretion in terms of clinical autonomy. The transference of responsibility for determining the nature and volume of doctors' work from clinicians to managers is likely to undermine doctors' morale (Anonymous, 1994). This is a factor which should be taken into consideration by those introducing changes to consultants' work, such as procedures for clinical governance, a measure designed to improve quality across the NHS as a whole.

Unlike for the stress factors, differences in the extent to which the different specialist groups reported the satisfaction factors as contributing to their job satisfaction overall followed a clear pattern. Surgeons reported experiencing relatively high levels of satisfaction from all three satisfaction factors, while radiologists experienced significantly less than the other three specialist groups, with gastroenterologists and oncologists falling between these two extremes.

Looking at the radiologists first, it is perhaps easy to explain their relatively low satisfaction from interpersonal relationships. Radiologists, by the nature of their role as a clinical support service, do not benefit to the same extent as the other three specialist groups from positive feedback from patients and relatives, whilst feedback from colleagues is often when there has been a diagnostic error and is therefore negative. Surgeons, by contrast, are involved in relatively immediate and clear-cut interventions with patients, which, if successful, either remove the health problem for the patient entirely (eg hernia) or at least remove the immediate threat (eg breast tumour). For this, patients are boundlessly grateful. If the surgery is unsuccessful, patients usually move on to become the responsibility of a consultant from another specialty, such as gastroenterology or oncology, for a medical approach. While these specialties have treatments which can potentially cure or contain diseases, or at least ameliorate their symptoms, their impact is often far less immediate and obvious.

Possible reasons why surgeons report relatively high satisfaction and radiologists relatively low satisfaction from their opportunities for personal and professional development and management and resourcing are more difficult to formulate. One potential cause could relate to the relatively high control surgeons have over their work. This is particularly so in comparison with radiologists, whose work patterns are less at their discretion, having to deal with colleagues' requests for examinations which are inappropriate and with the continuous expectations of colleagues to do their work immediately (Graham *et al.*, 1996). As a result of this it may be relatively more feasible for surgeons than radiologists to create opportunities for learning and research and to obtain the financial resources, facilities and staff they require for the successful performance of their role.

Relationships between the job stress and job satisfaction factors were for the most part extremely weak. The strongest association (at r=-0.31 still weak) indicates consultants who report high stress from feeling poorly managed and resourced report little satisfaction from this factor. Examination of the questionnaire items which make up these two stress and satisfaction factors (pages 140 and 148) indicates that two items cover the same material. These are the items relating to "having inadequate facilities (eg equipment, space) to do your job properly" (stress factor) and "feeling you have adequate facilities to do a good job" (satisfaction factor), along with the items "feeling your accumulated skills and experience are not being put to their best use" (stress factor) and "feeling your clinical experience is used to the full in the job you do" (satisfaction factor). The remaining stress and satisfaction items in the two factors are unrelated. A proportion of the relationship between these two stress and satisfaction factors is likely therefore to be explained by the overlapping content. Since these items also form part of the composite job stress and satisfaction scores, overlapping content will also explain part of the relationship between these variables, though since the items constitute only 2 out of 18 stress and 2 out of 14 satisfaction items, overlap in content of items is likely to explain only a small part of the relationships found; the remainder being non-trivial.

Associations of stress factors with psychiatric morbidity and with the emotional exhaustion and depersonalisation subscales of burnout are weak to moderate (r=0.13 - 0.49). Again examination of the items which made up these scales (pages 140, 269 and 59) indicated no specific overlap in content of items. Job satisfaction factor scores were not associated with GHQ scores or with the emotional exhaustion or depersonalisation subscales of burnout, but associations were seen with the personal accomplishment subscale of burnout. Examination of the items making up these scales (pages 148 and 59) indicated there was potentially some overlap in the content of one job satisfaction item "Having good relationships with patients" with the personal accomplishment items relating to working with the recipients of one's care. The latter relate to aspects of interacting with patients, rather than to the quality of consultants' relationships with their patients, but clearly are enquiring about similar aspects of consultants' work. The overlap of content in this one item may explain some of the association found between personal accomplishment score and scores on the job satisfaction factor "Deriving interpersonal satisfaction". Other than this one item, no further overlap of content was apparent between job satisfaction and personal accomplishment items.

11.3 Consultants' mental health

Psychiatric morbidity

Twenty-seven per cent of consultants had a GHQ-12 score of 4 or more, indicating they were estimated to have a level of psychiatric morbidity likely to benefit from clinical intervention. Is this an accurate reflection of the current emotional state of UK hospital consultants? The GHQ has been demonstrated to be one of the more psychometrically robust self-report measures of psychiatric morbidity, in that it has a good level of accuracy in identifying clinically significant psychiatric morbidity compared with a clinical psychiatric interview, seen as the "gold standard" for assessing psychiatric morbidity. Although agreement is to a high degree, there will nevertheless be some mis-classification. Sensitivity and specificity figures (73% and 86% respectively) from a recent validity study based on a sample of NHS staff give an indication of the likely extent of this (Borrill *et al.*, 1996).

Weinberg asked a sample of NHS Trust staff to complete the GHQ-12 and subsequently carried out a clinical psychiatric interview on a subsample of these (Weinberg, 1999). Rather surprisingly, in comparison with what would be expected from sensitivity and specificity figures, only 55% of staff from this subsample identified by the GHQ as having psychiatric morbidity were subsequently confirmed to have case level symptomatology at interview. Changes in individuals' experience of these symptoms between the times of completing the questionnaire and attending the interview may possibly account for some of this difference. Another possible explanation is that the threshold used (3\4) was too low for doctors, resulting in a number of doctors suffering minor emotional distress being classified as having psychiatric morbidity. This threshold is relatively high compared to those used in validity studies of other populations, however (see table 3.1, chapter 3), which suggests this is unlikely. Alternatively, the difference found may indicate doctors were more likely to admit to symptoms of poor mental health in a private paper and pencil exercise than when face to face with a psychologist.

The large number of validity studies reporting high sensitivity and specificity (Banks, 1983; Bellantuono *et* al., 1987; Borrill *et al.*, 1996; Mari & Williams, 1985; Pan & Goldberg, 1990; Radovanovic & Eric, 1983; Shamasundar *et al.*, 1986; Van Hemert *et al.*, 1995) suggest that the true prevalence should be closer to the uncorrected GHQ prevalence found in the current study than 55% of this, as indicated by Weinberg's study. The cut-off score of 3/4 used in this study was taken from a previous study of medical students and junior doctors and has not been validated specifically on hospital consultants, though it has been found to be the most appropriate cut-off in a validation study of NHS staff, including consultants (Wall, 1997). Without a validation study on the current data, which was not feasible within the time and financial constraints of the current study, or a validity study on another sample of hospital consultants, it is not possible to be more certain about the accuracy of the prevalence identified in the current study.

One possible problem with what is termed the "GHQ" method of scoring the GHQ-12 is that it may miss long-standing disorders. This is because respondents' answers of "No more than usual" to the negative items (for example "feeling constantly under strain") are coded '0'. Goodchild and Duncan-Jones (1985) have suggested that answers of 'No more than usual' to the negative items be scored '1', to avoid this problem (this is termed the "CGHQ" method of scoring). They report this method gives superior validity coefficients against caseness as measured by the Present State Examination and produces more normally distributed scores. Goldberg & Williams (1988) suggest using this method if it is desirable to have more normally distributed scores, but state that the superiority of this method is not proven. In light of this, the standard GHQ method of scoring was used in the current study. The implication of this for the prevalence of psychiatric morbidity found here is that a number of long-standing cases of psychiatric morbidity may have been missed.

The prevalence of psychiatric morbidity (27%) found in this national study of consultants is a little lower than that found among a large sample of consultants from six NHS Trusts (35%) (Borrill *et al.*, 1996), certainly lower than among a smaller sample from North Lincolnshire (47%) (Caplan, 1994), but a little higher than a small sample from a single teaching hospital (25%) (Tattersall *et al.*, 1999), and rather higher than among a large sample of consultants working in Scotland (21%) (Blenkin *et al.*, 1995). Without the limitations of small sample size or geographic specificity, which characterise all of the other studies, the current study is likely to present the most accurate assessment of psychiatric morbidity in UK hospital consultants to date.

The prevalence of psychiatric morbidity found among UK hospital consultants in the current study is similar to that found among junior doctors in this country using a similar methodology (Firth, 1986; Firth-Cozens, 1987). This is perhaps surprising, since consultants are a survivor population, having progressed through the rigours of medical training and attained the most senior level in their profession. Possibly it is the case that, while consultants leave behind the pressures of junior life in terms of working extremely long hours and trying to establish themselves in a challenging and competitive profession, other new difficulties take the place of these, such as having ultimate responsibility for patient care and having to manage teams or units. The prevalence of psychiatric morbidity found in this study among consultants is also higher than has been found in a survey of the general employed population using the GHQ (British Household Panel Survey, 1994). Comparison with GPs is difficult, since most studies have used different instruments than the one used here to measure mental health. One study using the GHQ found the prevalence among consultants (46%) was slightly lower than among GPs (48%) (Caplan, 1994), but the study only examined doctors in one Health Authority and these prevalences appear high in comparison with other larger sample studies.

Burnout

Thirty two per cent of consultants reported high emotional exhaustion, 24% high depersonalisation, and 39% low personal accomplishment according to the MBI. In comparison with other studies using this instrument, the current sample of consultants appeared to have a higher prevalence of burnout on all three subscales than a combined sample of doctors and nurses working in oncology (Catalan *et al.*, 1996), and higher depersonalisation and low personal accomplishment than a similar combined sample of staff working in bone marrow transplant units (Molassiotis & van der Akker, 1995). Consultants in the current study reported lower emotional exhaustion and depersonalisation, but a similar level of low personal accomplishment than a sample of psychiatrists (Guthrie *et al.*, 1999). Overall these data indicate approximately a third of consultants in this sample are reporting symptoms of a syndrome comprising feeling emotionally overextended by their work, ceasing to care about their patients and feeling reduced levels of achievement in their work, and that the levels found are a little higher than has been reported among some combined samples of doctors and nurses in this country.

Two problems have been identified with use of cut-off scores for the MBI. The first is that using cut-off scores based on US norm scores may result in incorrect classification of doctors in other countries. Schaufeli and van Dierendonck (1995) administered the MBI to a sample of Dutch human service workers and found the Dutch workers reported lower scores on emotional exhaustion and depersonalisation, but higher scores on reduced personal accomplishment. Splitting the distribution into thirds, in the same way as was done to identify the US cut-off scores, would result in lower cut-off scores being identified in the Netherlands. Use of the US cut-off scores on the Dutch data would result in an underestimation of the prevalence of emotional exhaustion and depersonalisation and an overestimation of low personal accomplishment. It is not clear currently how data derived in the UK compare to those from the USA, but using the US cut-off scores may result in a degree of inaccuracy.

Second, the fact that the cut-off scores were derived statistically rather than being clinically validated (for example, using people who are receiving treatment for psychological distress which is thought to be work-related) means that they are likely to overestimate the prevalence of burnout. This is because of the "healthy worker" effect (Karasek & Theorell, 1990), which refers to the fact that studies of occupational samples are usually based on those currently at work, and therefore relatively healthy, while they exclude those who are on sick leave or have left the organisation for reasons which may include having experienced burnout. The data on which the US cut-offs were based were collected from a sample of US people in work (Maslach & Jackson, 1986), and therefore assumed to be more or less healthy. The sample did not include those who were perhaps

absent from work through ill health or for any other reason. Schaufeli and van Dierendonck (1995) indeed found higher burnout scores among a sample of human service professionals referred to an out-patient therapeutic centre because of work-related mental health problems (excluding those with personality disorder or psychosis) than among a Dutch normative sample, which he claims supports the likelihood of there being a healthy worker effect in the US norm data. Again the implication of this is that using cut-off scores requires involves some inaccuracy, which in the current study would cause the prevalence of burnout to be overestimated. Using cut-off scores is problematic therefore for a number of reasons, but use of the MBI in this way continues because it provides such useful information. In studies whose aim is to explore factors which may predict burnout, it is useful to try to predict the individuals whose score on each subscale falls into a category which indicates that their likelihood of having burnout is relatively high.

Correlations between the two forms of poor mental health assessed in this study indicated moderate positive associations between GHQ score and emotional exhaustion and depersonalisation. Examination of the items which make up the GHQ and these two burnout scales (listed on pages 269 and 59) revealed two items do appear to cover similar ground. These were the GHQ item "Have you recently felt constantly under strain?" and the emotional exhaustion item "Working with people all day is a real strain for me". This overlap may explain a small part of the relationship found between psychiatric morbidity and emotional exhaustion. No other items on these two scales cover similar ground, and in particular the GHQ has no items specifically concerning exhaustion. There is no obvious overlap in the content of GHQ items and items making up the depersonalisation subscale of burnout. In terms of overall emphasis, it is apparent that the items which make up the burnout scales are clearly framed within the context of work, whereas GHQ items are more global. The relationships between psychiatric morbidity and burnout identified here clearly do not appear to arise from confounding of item content, other than from a single item.

11.4 Individual differences and differences according to job factors in the prevalence of poor mental health

Gender

Women consultants in this study were not found to have a higher prevalence of psychiatric morbidity than their male colleagues. This is perhaps a little surprising, when many other studies of the mental health of doctors do find a higher prevalence among women (Borrill *et al.*, 1996; Firth-Cozens, 1987; Grainger *et al.*, 1995; North & Ryall, 1997; Wall *et al.*, 1997; Whitley *et al.*, 1991; Williams *et al.*, 1998). There are a number of issues to consider here. First, in the general population overall the rate of neurotic disorders is higher among women than men (Jenkins, 1985), which could result from an increased personal vulnerability or from sociodemographic factors. When single occupational groups are studied, however, a difference is less likely to be found (Jenkins, 1985). This suggests it is more likely to be sociodemographic factors which account for the general population gender difference, and that working in some jobs may protect womens' mental health.

The second issue is the fact that with only around 15% of consultants across all specialties being female (12% of the current sample), it is clear that the number of women who attain consultant grade is small. A possible explanation for the lack of any difference found in the current study is that women most prone to psychiatric morbidity are least likely to attain this level of seniority. In some of the most competitive specialties the proportion of women is even smaller: in the current sample the proportion of women surgeons was only 2%. It may be that only those women who are the most robust psychologically are the ones who attain consultant status in this specialty. Or it may be that women with different vulnerabilities to psychiatric morbidity choose to work in different specialties. In a study of palliative physicians (Graham *et al.*, 1996), one of the specialty groups in which the proportion of women consultants is much higher (42% of the study sample), a higher prevalence of psychiatric morbidity was found in this case among the

women than the men (38% vs 16%). So taking these two issues into consideration, the lack of any difference between male and female consultants found here could be the result of the women in this sample working in a job which protects their mental health in comparison with other women in less high status roles, or women who are not in employment. Combined with this, it may be that only a small proportion of very psychologically robust women reach consultant status in the four specialties surveyed here.

One other study of UK consultants did find a higher prevalence among women, which may result from them having sampled consultants from all hospital specialties, including perhaps those in which there is a higher proportion of women (Borrill *et al.*, 1996; Wall *et al.*, 1997). The study, which covered NHS staff at all levels, also found a higher prevalence among women junior doctors and managers, but not among other staff, such as nurses, laboratory or technical staff and those working in administration. This indicates it is not the case that *all* female staff working in the NHS are at increased risk of poor mental health. For hospital managers the large gender difference was seen only in a few of the 19 hospital trusts from which data were collected, which suggested factors to do with being a manager in certain trusts were largely responsible (Wall *et al.*, 1997). Among doctors, however, the difference was found across all trusts, which the authors suggests implicates role rather than organisational factors. For doctors, none of the role-related factors measured in this study explained the gender difference, including hours of work, perceived workload, role ambiguity, role conflict, influence in decision-making, autonomy, feedback, social support, amount of contact with patients, or number of dependent relatives (a measure of home-work conflict). This indicates that the role factors involved are likely to be ones other than those measured in the study.

Experimenter effects resulting from the gender of the investigator have been reported. For example, Levine and De Simone (1991) found men gave systematically lower ratings of experienced pain to a female than a male researcher. Such effects were unlikely to have occurred in the current study, however, since letters of invitation to consultants were signed not only by myself, but also by male members of the expert panel, as appropriate to each specialty.

Specialty

In view of their greater exposure to the difficulties of treating patients with incurable disease, such as breaking bad news and having to tolerate a relatively high rate of what could be seen as treatment failures, oncologists were hypothesised to be at greater risk of poor mental health. In fact, no differences were found in the prevalence of psychiatric morbidity across the four specialty groups surveyed, though analysis using mean scores indicated a slightly lower prevalence among surgeons. There was also a very similar

prevalence of burnout across the specialties, with the exception of a relatively low prevalence of depersonalisation among surgeons and a relatively greater proportion of radiologists reporting low personal accomplishment.

Looking at sources of job stress, oncologists did not report higher stress from dealing with patients suffering than the other two specialist groups with clinical responsibility for patients (surgeons and gastroenterologists), and did not therefore report experiencing uniquely high stress from this aspect of work. This finding from a systematic evaluation of sources of stress undertaken here contradicts the large anecdotal literature describing the particularly difficult time oncologists have in working with their patient group (Delvaux *et al.*, 1988; Lopez & Meyer, 1985; Peteet *et al.*, 1989; Vachon, 1979; Whippen & Canellos, 1991).

The study did give some indicators of the reasons for surgeons' relatively good mental health and radiologists relatively low personal accomplishment in comparison with the other three specialist groups. Although surgeons reported experiencing relatively high levels of stress from three of the four stress factors measured here, they also experienced relatively high job satisfaction across all the job satisfaction factors. It is likely that the surgeons are protected from burnout and psychiatric morbidity, in part, by the considerable control and discretion they have over their work and also by the positive and immediate feedback that they regularly receive from patients and relatives. Although radiologists reported relatively low stress from work overload, their interactions with patients and from their managerial responsibilities, they experienced relatively high stress from feeling poorly managed and resourced. More importantly, radiologists reported low satisfaction in comparison with the other groups across all job satisfaction factors, and job satisfaction overall was found to be moderately strongly related to personal accomplishment. In particular, as already described, the role of radiologist does not enable incumbents to experience the relationships with patients the other specialist groups experience as so satisfying, while their interactions with other consultants can often be adverse, characterised by complaints about diagnostic errors and about their work not being done immediately.

To what extent a difference in risk of poor mental health across specialties reflects differences in the nature of the work or differences in the nature of the doctor is difficult to discern. It may be that the particular personal characteristics of doctors attracted into different specialist careers determine the degree of their psychological vulnerability. A recent study found that psychiatrists differed from surgeons and physicians on a number of personality traits and that while psychiatrists reported significantly fewer clinical work demands than the surgeons and physicians, they reported significantly more burnout and depression (Deary *et al.*, 1996a). A possible reason why surgeons report relatively high

job stress but not poorer mental health may be that the type of doctors who choose surgery are intrinsically more resilient in dealing with stress at work than those who choose other specialties. American students who choose surgery have been shown to perceive more of the stress they experience as favourable and to have higher self-esteem and feel more in control of the events in their lives, suggesting that doctors who choose surgery thrive or are challenged by a stressful environment and are personally better equipped to cope with it (Linn & Zeppa, 1984). Anecdotal evidence does indeed suggest that personality characteristics of surgeons may be different from those of doctors in other specialties in ways which make them less likely to experience psychiatric morbidity as a result of the ongoing stress of their work. The "surgical temperament" has been described as being "activistic, egocentric, decisive, controlling and confident" (Mizgala *et al.*, 1993) a stereotype reflected in the media by characters such as Sir Lancelot Spratt, Dr Kildare and Edgar Pascoe of "The Fragile Heart". An American study comparing practising surgeons with other types of doctor (Abbott, 1983) found US surgeons to be less "humanistic", using an authoritarian rather than democratic approach to patients. The surgeons were less aware of or concerned about social problems, were manipulative rather than cooperative in their approach to patients, less concerned for the psychological well-being of their patients, and put less emphasis on treating the whole patient rather than the disease. Further systematic research is needed to determine whether surgeons do indeed differ from other specialists on validated, measurable aspects of personality. Interestingly a recent study using standardised personality inventories found similar levels of the Type A stress-prone personality (extremely competitive, high achieving, impatient) among UK surgeons and other professional populations (Green *et al.*, 1990).

Regarding oncologists, a perception among oncologists themselves is that young doctors select the specialty whose demands they believe they can meet and from which they believe they can derive satisfaction. Those who make oncology their career choice may perceive that they will be able, for example, to tolerate telling people on a daily or weekly basis that they have cancer, usually a frightening and upsetting diagnosis for patients, and can even derive some satisfaction from doing this in a way which conveys accurate information while enabling the patient to retain some hope for the life ahead of them. Investigation of these ideas will require an examination of the reasons for individual doctors' career choices, which was beyond the scope of this thesis, but the ideas certainly appear interesting.

Age

The prevalence of psychiatric morbidity was similar across the younger age groups, but relatively lower among consultants aged over 55. The prevalence of burnout also varied with age. For emotional exhaustion the highest prevalence was among consultants in the age range 36 to to 55, with those aged over 55 again having a relatively lower prevalence,

alongside those under 35. This youngest group of consultants, by contrast, had the highest prevalence of depersonalisation, with the prevalence decreasing over the older age groups, and being very low once again among consultants aged over 55. The same proportion of consultants across all ages reported experiencing low personal accomplishment. The overall pattern in relation to age in this study therefore is a relatively low prevalence of both psychiatric morbidity and burnout (emotional exhaustion and depersonalisation) among the consultants aged over 55 and higher depersonalisation among those under 35.

In other studies of doctors, younger age has been found to be a risk factor for anxiety (Green *et al.*, 1990) and burnout (Agius *et al.*, 1996; Guthrie *et al.*, 1999; Kirwan & Armstrong, 1995; Winefield & Anstey, 1991). A relatively low prevalence among the oldest group of consultants has been reported by one study of NHS staff (Borrill *et al.*, 1996), who found for psychiatric morbidity exactly the same curvilinear between age and psychiatric morbidity as was found for emotional exhaustion here, with those in the 26-45 age range having higher rates than their younger and older colleagues.

Relationships with age found in this and the other studies argue against the idea that burnout and psychiatric morbidity develop cumulatively over years of exposure to stress at work (Cherniss, 1980; Leiter & Maslach, 1988; Roberts, 1986), and theories of how burnout develops should be re-examined in light of this consistent finding. In the current study, the group of consultants over 55 years old was small, and it is possible consultants who were aware of experiencing impaired mental health had arranged to retire early from the profession. Younger consultants' relatively high prevalence of depersonalisation may reflect the difficulties they experience in the first few years while they are still learning the role of consultant, at which time they may experience their work as more stressful than more long-serving colleagues. Perhaps because they are still lacking confidence in their interactions with patients, or because they find their interactions with patients so onerous, they may need to distance themselves from patients to a greater extent than more senior colleagues as a way of coping with these demands. For some this hardening of their attitude towards patients may become quite extreme, as reflected in a high level of depersonalisation. Since the vulnerability that goes with young age is now a consistent finding, mechanisms such as mentoring by more experienced colleagues may need to be put in place in medicine to assist the transition of new consultants into their senior post.

Marital status

Epidemiological research has suggested that marriage is beneficial to mental health, though more recent data suggest this broad statement requires a degree of qualification (Umberson & Williams, 1999). In this sample of hospital consultants no differences were found in the prevalence of psychiatric morbidity according to marital status. For burnout,

marital status was related to scores on one of the dimensions only, in that emotional exhaustion scores were relatively high for consultants who were single rather than married/cohabiting or separated/divorced/widowed. Relationships found with marital status in other studies of doctors are generally rather weak, but it has been found that GPs who lived alone had higher anxiety scores than those who lived with partners (Chambers & Campbell, 1996). Marriage has been also found to protect mental health among senior doctors in the USA (Revicki *et al.*, 1993). A link between marital status and mental health has not always been found in studies of doctors (for example, Cooper *et al.*, 1989), which may result from the variable quality of marital relationships. Marital status is used really as an assessment of a form of social support, and broadly some of these studies indicate that consultants who have a partner-relationship have slightly better mental health than those who do not.

Job factors

Few relationships were found between the job factors measured here and consultants' mental health. There were no differences in the extent of poor mental health according to whether consultants worked full- or part-time, or according to whether or not consultants worked in private practice in addition to their NHS commitments. The only difference found was that, as hypothesised, consultants whose post involved academic work in addition to clinical commitments had lower burnout, in the form of depersonalisation, than those whose role was purely clinical. It appears that having an academic post of professor, reader or senior lecturer may protect against poor mental health, through providing alternative activities to the full-time patient care undertaken by consultants in entirely clinical posts. Hypotheses about the relationships of these factors to consultants' mental health were derived from conjecture, rather than being derived from the literature, and further investigation of these factors is required to confirm or refute the association found here.

Perceived adequacy of training

The provision of medical care is becoming more complex for doctors in terms of the technology involved and the demands of patients. Ninety-six per cent of consultants in this sample with clinical responsibility for patients (gastroenterologists, surgeons and oncologists) perceived their training in the treatment of disease to have been sufficient, while 84% of consultants felt sufficiently trained in symptom control. This indicates that for the most part consultants perceived their training in these core clinical skills was sufficient for the performance of their role. Likewise, 95% of radiologists felt their training in general radiology had been sufficient and 65% felt sufficiently trained in specialised radiology.

Rather fewer consultants (45%) felt sufficiently trained in another important clinical skill: communication. In addition, consultants have an increasing role in management, yet only

22% of consultants felt sufficiently well trained in this skill. This is potentially of concern, since it demonstrates a high proportion of consultants are aware of lacking sufficient skills in these two important areas, and that their performance of aspects of their role for which these skills are required may be impaired relative to what it could be if they did possess these skills. The increasing emphasis on patient-centered care requires the integration of the more traditional disease management skills with more "people-oriented" skills, including communication and management skills.

Data from the current study suggest the adequacy of doctors' training may also impact on their mental health. The extent to which consultants perceived they had received sufficient training in communication and management skills was not associated with their psychiatric morbidity, but a clear pattern of relationships was found with burnout. Consultants who perceived their training in these skills to have been insufficient had higher emotional exhaustion, higher depersonalisation and lower personal accomplishment, indicating higher burnout overall. So in addition to a high proportion of consultants being aware of lacking sufficient skills in these two important areas, with the implications of this for their performance, these consultants are clearly also at greater risk of developing burnout. Further, another study has found some evidence to indicate that doctors and nurses with higher burnout communicate less effectively with patients (Heaven, Maguire, & Clegg, 1998).

Adequacy of training was measured in the current study using single item self-report measures, asking consultants whether they perceived their training in various skills had been sufficient, with a YES/NO response. Based on these rudimentary measures, the data indicate that feeling well or poorly trained in communication and management skills appears to be associated with consultants mental health. These very preliminary data require confirmation and further exploration using more detailed and robust measures of training, focusing on the actual training consultants have received in addition to examining their perceptions of how well trained they are in greater detail. Nevertheless these preliminary findings strongly suggest the need for training in communication skills to become a greater focus of undergraduate and postgraduate training, both to enhance consultants' clinical performance, as well as for the protection of their mental health.

11.5 Associations between consultants' poor mental health and job/demographic characteristics and ratings of job stress and satisfaction

Univariate analyses demonstrated moderate associations between consultants ratings of job stress and satisfaction and their level of psychiatric morbidity, along with their scores on the emotional exhaustion and depersonalisation subscales of burnout. These associations indicated that as consultants perception of the degree to which they found their work stressful increased, so did the number of symptoms of psychiatric morbidity

they experienced, as well as indicators that they were experiencing burnout. As their job satisfaction increased, their psychiatric morbidity, emotional exhaustion and depersonalisation scores decreased. Associations with personal accomplishment followed a different pattern, having no association at all with consultants' ratings of job stress, but significant, positive associations with job satisfaction.

Are these true associations or just an artefact of the study design? Certainly using self-report measures to assess both job stress and satisfaction and psychological impairment may have resulted in trivial associations, produced as a result, for example, of common method variance, overlap in the content of the questionnaires, both variables being influenced by a third variable which accounts for the relationship between them, short-term fluctuations in well-being, or demand characteristics. In the current study, using standardised instruments to measure consultants' mental health and basing the composite measures of stress and satisfaction on specific aspects of the environment, rather than consultants' subjective evaluations of the stress and satisfaction they were experiencing, should have gone a long way to minimise trivial associations being found between these variables. In fact, global, subjective measures of consultants' job stress and satisfaction were used in addition to composite job stress and satisfaction scores. Examination of the associations of these with consultants' mental health indicated that the global, subjective ratings in general had stronger relationships with consultants' mental health, but that the differences in magnitude were small. This would suggest any measurement error induced by using consultants' global, subjective assessments of their mental health were not large.

Multivariate analysis revealed that overall consultants' job and demographic characteristics were associated only very weakly and inconsistently with burnout and psychiatric morbidity among this occupational group. A much greater proportion of the variance in consultants' poor mental health was explained when ratings of job stress and satisfaction were entered into the prediction equation, in particular for psychiatric morbidity and emotional exhaustion. Again, as consultants global assessment of how stressful they had found their work over the last few months increased, from not at all to extremely, so did their level of psychiatric morbidity, emotional exhaustion and depersonalisation. As their ratings of how satisfying they had found their work overall increased, their psychiatric morbidity, emotional exhaustion, depersonalisation scores reduced and personal accomplishment scores increased. Exactly the same pattern of relationships was found when composite stress and satisfaction scores were used, based on consultants total job stress and satisfaction scores across 18 stress 14 satisfaction items, though the relationships were slightly weaker. It should be noted that only a small amount of variance in depersonalisation and personal accomplishment scores was explained by these variables. This is perhaps not surprising, since mental health may be determined by a number of factors in addition to those measured here, for example, childhood

experiences, biological vulnerability, and life events outside work. The focus of this study was essentially on occupational risk factors, and protective factors, and a comprehensive assessment of all the factors thought to possibly have a role in the development of poor mental health was beyond its scope.

As well as with overall job stress and satisfaction, associations were also found between stress arising from specific aspects of consultants' work and their mental health, from analyses bases on stress and satisfaction factor scores. The amount of variance in mental health scores explained was greater using the stress and satisfaction factor scores than consultants global or composite ratings of overall job stress, ranging from 41% for personal accomplishment to 60% for emotional exhaustion. Consultants who reported high levels of stress from work overload and its effect on their home life were at greater risk of psychiatric morbidity, emotional exhaustion and depersonalisation. Experiencing stress from work overload increased consultants' risk of poor mental health according to these indicators the greatest amount of all the factors. Experiencing stress from involvement with patients' suffering also increased consultants' risk of having psychiatric morbidity and burnout (emotional exhaustion and depersonalisation only). This indicated that although the number of consultants who reported stress from their involvement with patients' suffering was relatively small in comparison with the other stress factors, these consultants were at greater risk of having poor mental health. Feeling poorly managed and resourced increased consultants' risk of having psychiatric morbidity and emotional exhaustion, while experiencing stress from their managerial responsibilities increased the risk only of psychiatric morbidity.

With regard to job satisfaction, consultants who derived a lot of job satisfaction from the opportunities their role provided for personal development and for the development of their profession were less likely than those who did not derive satisfaction from this to have psychiatric morbidity and emotional exhaustion and more likely to report high levels of personal accomplishment. Consultants who derived high satisfaction from having good relationships with patients, relatives and other staff members were less likely to have high depersonalisation and had higher personal accomplishment. Consultants who felt well managed and resourced were less likely to have psychiatric morbidity.

Since this is cross sectional research it could obviously be the case that, rather than job stress and satisfaction predicting poor mental health, consultants who are suffering poor mental health experience their job more negatively and are therefore more likely to report high job stress and low job satisfaction. If it were the case that consultants mental health influenced their perception of the stress and satisfaction they experience in their work, it would be expected stress ratings would increase and satisfaction ratings decrease across all the factors at higher levels of poor mental health. In the current study, relationships

between consultants' mental health and the stress and satisfaction factors were not uniform, however, which goes against this conceptualisation of the direction of the relationships. Models of job stress suggest poor mental health develops after an individual has been exposed to job stress. Certainly there appears to be a degree of logic in the expectation that an individual who is in a work role in which they experience certain aspects as extremely stressful, through, perhaps, having far more to do than is possible to do while still doing everything well, they may be likely to develop symptoms of poor mental health. The specific nature of the relationships between the job stress and satisfaction factors and consultants' mental health found here suggest mental health is not influencing consultants' perceptions of job stress and satisfaction globally and that the relationships could be as suggested by stress models. In order to disentangle the direction of these associations more clearly, however, longitudinal research is needed.

The difficulties of longitudinal research, of which of time and funding are not the least, have resulted in their being almost no longitudinal research on doctors in this country. One study which has taken a longitudinal approach is (Firth-Cozens, 1987) study of a fairly small sample of medical students progressing through to junior doctors. She found one of the factors measured in these doctors as medical students, self-criticism, predicted psychiatric morbidity 10 years later in a sample who had become general practitioners. More of this type of research is needed, focusing on a broader range of potential predictor variables than was the case in this one study.

11.6 More detailed examination of relationships between job stress, job satisfaction and consultants' mental health

The analyses described so far suggested job satisfaction may protect consultants mental health, either directly or through buffering the harmful effect on it of job stress. A graphical approach provided greater clarity about the nature of these relationships. Job satisfaction decreased the likelihood of consultants having psychiatric morbidity and burnout, but in different ways across these indicators of poor mental health. The greater the overall job satisfaction, the less likely it was consultants would have psychiatric morbidity or burnout according to all three dimensions. In addition to these direct effects, job satisfaction also buffered the harmful effect of job stress on psychiatric morbidity, indicated by finding that the relationship of psychiatric morbidity with job stress was much stronger for consultants experiencing low satisfaction than for those whose job satisfaction was high. So consultants experiencing high satisfaction from the performance of their role were less likely to develop psychiatric morbidity, and in addition, appeared more able than those with moderate or low job satisfaction to tolerate high demands of their role without developing symptoms of psychiatric morbidity.

The evidence for a buffering effect of job satisfaction on the relationship of job stress with burnout was less compelling, however, being significant only for the analysis of emotional exhaustion and only when based on the more subjective global rather than composite stress and satisfaction ratings. Relationships with personal accomplishment followed a different pattern than for the other indicators of poor mental health, perhaps not surprisingly, since high scores on this scale indicate good rather than poor mental health. The prevalence of low personal accomplishment decreased markedly the greater the satisfaction consultants derived from their work, but a stress-buffering effect was not investigated, since personal accomplishment was not related to job stress. Overall, using both psychiatric morbidity and burnout as indicators of consultants' mental health, these data clearly indicate that consultants who experience a great deal of satisfaction from their work are likely to have better mental health.

Further evidence for the importance of job satisfaction for consultants' mental health is provided by examining cross specialty differences in their mental health. As described earlier in this chapter, radiologists were found to have relatively high burnout according to one of the dimensions, personal accomplishment. Radiologists reported relatively low levels of stress, in comparison with the other specialists, but also low levels of satisfaction from all the main sources. Surgeons, in contrast, reported high levels of job stress from work overload and from dealing with patients' suffering, but did so alongside high levels of job satisfaction from having good relationships at work and from their opportunities for personal and professional development. It appears possible that the relatively high levels of satisfaction reported by surgeons from these aspects of work may have had a role in protecting them from developing poor mental health in the face of high stress.

In comparison with the strength of the relationships of job stress with psychiatric morbidity, emotional exhaustion and depersonalisation, the relationships of job satisfaction were relatively weaker. This suggests making changes to consultants' work to reduce their job stress would have a more powerful effect on their mental health than changes to increase their job satisfaction. What also has to be taken into consideration, however, is the feasibility of making such changes. The predominant source of stress for hospital consultants currently is work overload, a situation which has existed for a number of years (Agius *et al.*, 1996; Richardsen & Burke, 1991; Firth-Cozens, 1987; Burke & Richardsen, 1990). Information from a number of sources indicates that, if anything, the workload of doctors' is increasing, as already described (Royal College of Radiologists, 1993; Mulholland & Muir, 1998). As well as increases in clinical activity, structural changes such as an increasing requirements for audit of doctors' clinical activities at the same time increase the administrative load. Future changes to the role of hospital consultants appear likely to continue this trend, with The Royal College of Physicians of London predicting that revalidation and clinical governance are likely to take up one and a half

sessions of consultants' time every week (Hospital Doctor, 26 October 2000). The possibilities for reducing consultants' workload appear limited therefore.

What about the feasibility of making changes designed to increase consultants' job satisfaction? One possible approach suggested by this study would be through making changes to increase the extent to which consultants felt well trained in communication and management skills. It could be hypothesised that consultants who felt they possessed the skills to enable them to carry out a particular task well would be likely to derive higher satisfaction from its performance than consultants who felt lacking in these skills. An analysis of data from oncologists indicated this is indeed the case, with consultants who felt well trained in communication and management skills deriving greater satisfaction from some of the aspects of work examined here, such as the intellectual stimulation of their role, including teaching and research (Ramirez *et al.*, 1995). Certainly, particularly since training was assessed only through a rather simple self-report measure, it could be the case that consultants were likely to report both higher job satisfaction and sufficient training in job skills as a result of a third variable, such as having high self-esteem. However, the fact that associations were not found between training and all sources of job satisfaction argues against this explanation. In the current study, only 45% of consultants felt sufficiently trained in communication skills and 22% in management skills, indicating that the proportion whose job satisfaction, and thereby mental health, could be improved through enhanced training is potentially large. Having opportunities to undertake activities relating to their personal and professional development, including having time to develop their skills, as well as for research and teaching, were described specifically by consultants in this study as important to their job satisfaction. Current plans for introducing a system for the periodic revalidation of doctors over the course of their careers should take into account that doctors themselves perceive their personal development as important to their job satisfaction. In view of this it is important that procedures for this are instigated which are likely to correspond at least in part with doctors' own perceived needs for development, and as such are likely to be embraced by senior hospital doctors rather than resisted.

Other sources of satisfaction may, like sources of stress, be more difficult to change. Insufficiencies of resourcing, including staff, money and facilities, are detrimental to consultants' job satisfaction, yet large increases appear unlikely. The fact that issues to do with the extent to which they perceive they have sufficient resources to do their job well influences both consultants' job stress and satisfaction indicates existing resourcing levels should at the very least be protected, in order to prevent further harm to consultants' mental health.

One other study has found job satisfaction to have a protective effect on doctors' mental health (Cooper *et al.*, 1999). Among a sample of anaesthetists, there was a moderate negative correlation of $r = -0.43$ ($p<0.001$) between job satisfaction and mental health, measured using scales from the Occupational Stress Indicator. Further, examination of correlations between consultants' mental health and different aspects of job stress, arising for example from management and work relationships, indicated that these were in general stronger when job satisfaction was low. Again, this suggests job satisfaction is protective of consultants' mental health through buffering the harmful effect of job stress on it.

For a professional group such as senior hospital doctors, there is great potential for the performance of their work to be highly satisfying. Consultants in this study indicated the levels of job satisfaction they experience from their work are indeed high. What has also been demonstrated clearly is that job satisfaction is an important factor in the development of poor mental health in this occupational group, and further studies of consultants' mental health should focus on this important variable, in addition to job stress.

11.7 Exploratory model of poor mental health in hospital consultants

The data from this study supported a model of poor mental health in hospital consultants which ties in closely with the most widely accepted stress models discussed in chapter 2, whereby perceived stress at work leads to poor mental health (Cooper & Marshall, 1976; Cooper, 1983). Job stress appeared to have a role in the development of burnout, through being associated with its core dimension, emotional exhaustion, and in the development of psychiatric morbidity, though rather more weakly. Job satisfaction protected consultants from burnout, in that it reduced the likelihood of emotional exhaustion developing and was associated with an increased likelihood of having high personal accomplishment. In the model, job satisfaction was not associated directly with psychiatric morbidity. Evidence that emotional exhaustion is the core aspect of burnout was provided by the fact that it predicted one of the other dimensions: depersonalisation. Personal accomplishment appeared to develop independently of the other two dimensions of burnout. Burnout predicted psychiatric morbidity, but not in the same way across its different dimensions: emotional exhaustion increased the risk of psychiatric morbidity, while personal accomplishment reduced it.

This model provided some tentative support, therefore, for the idea that job-specific burnout precedes psychiatric morbidity, a more pervasive form of poor mental health, and that burnout is not so far as psychiatric morbidity along a continuum of poor mental health of increasing severity (Weinberg, 1999). It ties in with early theorising that depression is an end point of burnout (Meier, 1984) and corresponds to some data provided more recently by Leiter and Durup (1994) based on structural equation modelling, suggesting

that the direction of influence is from the more context specific emotional exhaustion to the more general depression. If this model is an accurate representation of the development of poor mental health in consultants, it may indeed be the case that identification of work factors which are associated with burnout may provide an opportunity to reduce the symptoms of burnout, and by doing so may also reduce the likelihood of a consultant going on to develop more pervasive and serious psychiatric morbidity.

The finding that job stress predicts poor mental health is not particularly novel, having been demonstrated across diverse populations, though it is nevertheless important to establish whether and to what extent such a relationship exists for hospital consultants. What is more interesting is that job stress has a much stronger relationship with burnout, in the form of emotional exhaustion, than with psychiatric morbidity. This was the case for consultants' subjective global rating of their overall job stress, overall stress as assessed by total score across 18 sources of job stress, and more specific sources of stress in the form of stress factors. Of course, this being cross sectional research, factors such as a greater overlap in the content of the measures of job stress with burnout than psychiatric morbidity cannot be ruled out as an alternative explanation for the different patterns of association found. However, the job stress items were related to specific aspects of the consultants' work, for example "Being involved with the physical suffering of patients" while emotional exhaustion items were more global statements about how the consultant felt about his or her job, such as "I feel frustrated by my job". It is argued therefore that the overlap was minimal and was unlikely to be responsible for the association between job stress and emotional exhaustion.

Models of the stress process generally show personal variables being associated with poor mental health, along with perceived stress. In this model, the personal variables hypothesised to be associated with poor mental health were found to have only very weak relationships, if any relationships were found at all. Feeling sufficiently trained in communication skills was associated with having higher personal accomplishment and less depersonalisation, though only very weakly. The fact that this variable remained significant in the model in spite of the very basic way in which it was measured in this study is strongly suggestive, as has already been stated, of the need for delivery of training in this skill areas to be made integral to undergraduate and postgraduate training, both to enhance consultants' clinical performance, as well as for the protection of their mental health.

11.8 Limitations of the study

The foremost limitation of this study is its cross-sectional design, from which it is not possible to determine the direction of causality among the variables measured with

certainty. For this, longitudinal research is required, particularly as it is currently lacking in this area of research.

All of the variables in this study were measured using self-report instruments. As a result, they may be subject to measurement error, because of factors such as common method variance, or even bias, through confounding of variables. Steps were taken in this study to minimise the effect of these, through, for example, the use of standardised questionnaires to measure mental health and through developing questionnaires to assess stress and satisfaction which were firmly grounded in the occupational environment. The issue of confounding of variables through overlap of content across different questionnaires was examined here specifically. Overlap in content was identified between two of the job stress and satisfaction items and between one job satisfaction items and several items of the personal accomplishment subscale of burnout. These represent a small number of the items of each scale, and the relationships reported here can be seen to be largely non-trivial. The high response rate and large sample size ensured the study was robust within these limitations. Studies are needed in which some of the variables are measured by other methods, such as observation, though these alternative methods present their own difficulties.

Specific measurement error is introduced by using a questionnaire rather than an interview to assess psychiatric morbidity. Using a questionnaire enables the collection of data from a large sample in a short time period, but is not as accurate in assessing psychiatric morbidity as an interview, since the data collected are far less detailed and therefore provide a less clear picture of an individual's current psychological state. The General Health Questionnaire is, however, one of the most robust instruments currently available to measure psychiatric morbidity, and the validity studies carried out provide an indication of the likely extent of measurement error.

In a study of the mental health of hospital consultants as an occupational group, the sample would have ideally comprised consultants from all of the hospital specialties. It is acknowledged that there could be sources of stress and satisfaction experienced generally across consultants working in some of the specialties not covered here, and that the sources of stress and satisfaction reported here may not provide a comprehensive picture of these for all hospital consultants.

Work is only one domain of life from which individuals can potentially experience stress. A fuller picture of the stress doctors experienced in their lives as a whole would have enabled exploration of the relative importance of job stress, and job satisfaction, in comparison with the stress and satisfaction experienced from other domains, relating, for example to close relationships, health and finances. A recent study has demonstrated elegantly that psychiatric morbidity is related both to stress at work and to life events or difficulties outside work (Weinberg & Creed, 2000). Again, however, this was beyond the scope of the current study. Future work would usefully examine the relative importance of work and non-work stress for consultants' mental health.

This study did not provide a comprehensive investigation of all of the factors which could potentially influence consultants' mental health. Identifying a relatively high prevalence of poor mental health among individuals working in a particular profession suggests that this may be the result of factors relating to the pressures faced by individuals in the performance of that profession or relating to the type of individuals choosing to go into that profession. Some research has attempted to get at the reasons why individuals choose to be doctors (Johnson, 1991; Lief, 1971), but the highly complex nature of this process, which in part doctors themselves may not even be conscious of, makes this difficult. Research has been carried out which has focused on the personal characteristics of doctors and which has found associations between some characteristics and poor mental health, though the associations have generally been weak. The current study did not explore the personal characteristics of doctors, or their motivations for choosing medicine as a career, because the focus was on the characteristics of their work role which influence consultants' mental health. The difficulty in choosing one of the many personal characteristics found in occupational research to be associated with poor mental health was another factor in this decision. It is acknowledged, however, that a greater amount of the variance in consultants' mental health scores is likely to have been explained if some of these personal characteristics had been measured in this study, along with other variables such as how consultants cope with their job stress.

11.9 Future work

This study alongside several others has begun to identify some of the work factors associated with poor mental health of hospital consultants currently practising in this country. These studies have not, however, demonstrated that factors such as work overload, for example, *cause* poor mental health in doctors. Longitudinal studies are essential if potentially causal relationships between work and other factors and poor mental health in consultants are to be investigated, but these are currently lacking. This gap in current knowledge has been identified in a recent report investigating ways of improving the health of the NHS workforce, written by the Partnership on the health of the NHS Workforce (Williams *et al.*, 1998). This partnership consists of a range of organisations with a vested interest in the health of the NHS workforce including the BMA, Royal Colleges, Department of Health and UNISON.

There are also a lack of data currently on the consequences of poor mental health among doctors which may harm patient care. These could potentially include impaired performance, sick leave, harmful levels of drug and alcohol consumption, and the increasing numbers of doctors seeking early retirement. Junior doctors with psychiatric morbidity have been found to report less confidence in performing a range of the clinical tasks, report making more errors and around a third report instances of poor patient care resulting from their symptoms (Firth-Cozens & Greenhalgh, 1997; Houston & Allt, 1997;

Williams *et al.*, 1997). The extent to which psychiatric morbidity impairs professional performance among consultants, or is associated with these other negative outcomes, has not been explored.

In order to begin to provide some of the data required to begin to clarify these issues, funding has been obtained to carry out some further research on the consultants in the current sample. The aims of this follow-up study will be:

- To fill an identified gap in the literature by providing *longitudinal* data to assess more clearly whether experiencing high job stress and low job satisfaction are likely to cause hospital consultants to develop poor mental health.
- To broaden the examination of potential causal factors for poor mental health among consultants to investigate stress arising from outside work, as well as early life experiences and the availability of a confiding relationship. There will also be a qualitative exploration of consultants' individual perceptions of factors which have caused them to develop symptoms of poor mental health.
- To explore longitudinally associations between consultants' poor mental health and consequences hypothesised to be harmful to patient care, including impaired clinical performance, sickness absence and drug and alcohol consumption.

It is anticipated that the data from this follow-up study will provide a clearer picture of the factors which cause hospital consultants to develop mental health problems and the ways in which this impairs their professional performance. From this, recommendations can be developed for actions to protect the mental health of consultants and thereby the quality of patient care.

The GHQ-12 has been used to estimate the prevalence of psychiatric morbidity among UK hospital consultants in the current study and in NHS staff generally (Wall *et al.*, 1997; Weinberg & Creed, 2000). As yet, the cut-off score indicating psychiatric morbidity has not been validated specifically for hospital consultants. In the follow-up study, it is planned that the sample of consultants undertake a clinical interview based on the DSM-IV classification system of mental illness, alongside the GHQ-12, enabling clarification of the most appropriate cut-off score for this particular occupational group.

A follow-up study will also provide the opportunity for a more in-depth assessment of the sufficiency of training for hospital consultants in the aspects of work identified as lacking here. In the current study a large proportion of consultants perceived their training in communication and management skills to be lacking, according to a rudimentary measure. Before suggestions can be made for the specific actions required to meet this perceived skill deficiency, further

work is required to identify more clearly the particular tasks for which consultants feel ill-equipped and the types of training they receive currently.

11.10 Conclusions

This study indicated that it is possible to identify a common view from in-depth interviews with hospital consultants of the sources of stress and satisfaction experienced in the performance of their role. Further, that these could be used to develop a questionnaire for the assessment of job stress and satisfaction among a large sample of UK hospital consultants. The national survey of consultants indicated that a high response rate is achievable in a postal questionnaire assessing mental health and job stress and satisfaction among UK hospital consultants. This survey found a prevalence of psychiatric morbidity among hospital consultants of 27%, which is similar to that found among junior doctors and higher than among the employed general population. Symptoms of burnout were also widespread. When asked to give an overall rating of how stressful and satisfying they find their work, consultants described moderately high job stress, but even higher levels of job satisfaction. Predominant sources of stress were work overload and its damaging effect on home life, poor management and inadequate resourcing, having managerial responsibilities and being involved with patients' suffering. Sources of stress appeared to arise to a greater extent from structural and managerial aspects of consultants' role than from technical or clinical aspects. Important contributors to consultants' job satisfaction were having good relationships with patients, relatives and staff, feeling well managed and resourced, along with having opportunities for personal and professional development.

These data permitted confirmation of the following hypotheses:

Hypothesis 1 The prevalence of both of psychiatric morbidity and burnout among consultants increased as the stress they experienced from their work increased.

Hypothesis 2 The prevalence of both psychiatric morbidity and burnout among consultants decreased as the satisfaction they experienced from their work increased.

Hypothesis 3 There was an interactive relationship of job stress and job satisfaction with psychiatric morbidity, whereby job satisfaction appeared to protect consultants' mental health against the harmful effect of job stress. No such interactive relationship was found for burnout.

Hypothesis 6 Consultants working in academic posts (university professor, reader or senior lecturer) had a lower prevalence of burnout, in the form of depersonalisation

than those in entirely clinical posts. Type of post held was not associated with psychiatric morbidity.

Hypothesis 9 Consultants who perceived that they had received insufficient training in communication and management skills had a higher prevalence of burnout than those who perceived their training in these skills to have been sufficient. Perceived adequacy of training in these skills was not associated with the prevalence of psychiatric morbidity.

The data did not support the following hypotheses:

Hypothesis 4 Women consultants will have a higher prevalence of psychiatric morbidity and burnout than male consultants.

Hypothesis 5 Consultants working in oncology will have a higher prevalence of psychiatric morbidity and burnout than those who working specialties which work with cancer patients less frequently.

Hypothesis 7 Consultants working in full-time posts will have a higher prevalence of psychiatric morbidity and burnout than those working part-time.

Hypothesis 8 Consultants working in private practice for part of their working week will have a lower prevalence of psychiatric morbidity and burnout than those whose work is based entirely within the NHS.

Studies of poor mental health among doctors often focus on personal characteristics of doctors, which are difficult to change, and sources of stress in the occupational environment, some of which also offer limited scope for improvement through being largely either intrinsic to the doctors' role or an inevitable consequence of other factors such as the recently acknowledged long-term under-funding of the NHS. The current study identified two alternative strategies to improving the mental health of those with ultimate responsibility for medical care in the hospital environment: enhancing job satisfaction and improving training in communication and management skills, both of which are potentially achievable. As has been pointed out elsewhere, "*..too often in applied research, the emphasis appears to have been on what one might call the disease model. That is, a focus primarily concerned with fixing what is wrong with someone, as opposed to developing what is right*" (Wright & Cropanzano, 2000; p92). Citing Myers and Diener (1995), Wright points out that "... *psychological publications focusing on negative states outnumber their positive counterparts by 17 to 1*" (p92). The current study indicates that rather than focusing on the negative impact of work, there

appears to be the potential to increase our understanding of poor mental health as it relates to work through research which focuses on its positive impact.

References

Abbott, L. (1983). A study of humanism in family physicians. *Journal of Family Practice, 16*, 1141-1146.

Agius, R., Blenkin, H., Deary, I., Zealley, H., & Wood, R. (1996). Survey of perceived stress and work demands of consultant doctors. *Occupational and Environmental Medicine, 53*, 217-224.

Allen, I. (1988). *Doctors and their careers.* London: Policy Studies Institute.

Alloway, R., & Bebbington, P. (1987). The buffer theory of social support - a review of the literature. *Psychological Medicine, 17*, 91-108.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders.* (Fourth Edition). Washington DC: APA.

Anonymous. (1994). Burnished or burnt out: the delights and dangers of working in health. *The Lancet, 344*, 1583-4.

Baldwin, P., Newton, R., Buckley, G., Roberts, M., & Dodd, M. (1997). Senior house officers in medicine: a postal survey of training and work experiences. *BMJ, 314*, 740-743.

Banks, M. (1983). Validation of the General Health Questionnaire in a young community sample. *Psychological Medicine, 13*, 349-353.

Banks, M., Clegg, C., Jackson, P., Kemp, N., Stafford, E., & Wall, T. (1980). The use of the general health questionnaire as an indication of mental health in occupational settings. *Journal of Occupational Psychology, 53*, 187-194.

Bates, E. (1982). Doctors and their spouses speak: stress in medical practice. *Sociology of Health and Illness, 4*, 25-29.

Beck, A., Steer, R., & Garbin, M. (1988). Psychometric properties of the Beck Depression Inventory: twenty five years of evaluation. *Clinical Psychology Review, 8*, 77-100.

Begley, T. (1998). Coping strategies as predictors of employee distress and turnover after and organizational consolidation: a longitudinal analysis. *Journal of Occupational and Organizational Psychology, 71*, 305-329.

Bellantuono, R., Fiorio, R., Zanotelli, R., & Tansella, M. (1987). Psychiatric screening in general practice in Italy. *Social Psychiatry, 22*, 113-117.

Berkman, L., & Syme, S. (1979). Social networks, host resistance and mortality: a nine year follow-up of Alamedia County residents. *American Journal of Epidemiology, 109*, 186-204.

Berwick, D., & Leape, L. (1999). Reducing errors in medicine. *BMJ, 319*, 136-137.

Billings, A., & Moos, R. (1982). Stressful life events and symptoms: a longitudinal model. *Health Psychology, 1*, 99-117.

Binyon, S. (1993). Stiff upper lip is no antidote to stresses of care. *Hospital Doctor, 25 March 1993*, 22.

Birch, D., Ashton, H., & Kamali, F. (1998). Alcohol drinking, illicit drug use, and stress in junior house officers in north-east England. *Lancet, 352*, 785-786.

Blenkin, H., Deary, I., Sadler, A., & Agius, R. (1995). Stress in NHS consultants. *BMJ, 310*, 534.

Borrill, C., Wall, T., West, M., Hardy, G., Shapiro, D., Carter, A., Golya, D., & Haynes, C. (1996). *Mental health of the workforce in NHS trusts.* Institute of Work Psychology, University of Sheffield and Department of Psychology, University of Leeds.

Brief, A., Burke, M., George, L., Robinson, B., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology, 73*, 193-198.

British Household Panel Survey. (1994). *British Household Panel Survey, 3rd wave data*: University of Essex.

British Medical Association. (1992). *Stress and the medical profession.* London: British Medical Association.

British Medical Association Board of Science and Education. (1993). *Morbidity and mortality of the medical profession in relation to the differential workload that they carry: a review of the literature and some suggestions for possible future research* . London: British Medical Association.

Brooke, D., Edwards, G., & Andrews, T. (1993). Doctors and substance misuse: types of doctors, types of problems. *Addiction, 88*, 655-663.

Brooke, D., Edwards, G., & Taylor, C. (1991). Addiction as an occupational hazard: 144 doctors with drug and alcohol problems. *British Journal of Addiction, 86*, 1011-1016.

Brown, G., & Harris, T. (1989). *Life Events and Illness.* London: Unwin Hyman.

Burke, R., & Richardsen, A. (1990). Sources of satisfaction and stress among Canadian physicians. *Psychological Reports, 67*, 1335-1344.

Byrne, B. (1993). The Maslach Burnout Inventory: testing for factorial validity and invariance across elementary, intermediate and secondary teachers. *Journal of Occupational and Organizational Psychology, 66*, 197-212.

Byrne, B. (1994). Testing for the factorial validity, replication and invariance of a measuring instrument: a paradigmatic application based on the Maslach Burnout Inventory. *Multivariate Behavioural Research, 29*(3), 289-311.

Caplan, R. (1994). Stress, anxiety and depression in hospital consultants, general practitioners and senior health managers. *BMJ, 309*, 1261-1263.

Carpenter, L., Swerdlow, A., & Fear, N. (1997). Mortality of doctors in different specialties: findings from a cohort of 20 000 NHS hospital consultants. *Occupational & Environmental Medicine, 54*, 388-395.

Catalan, J., Burgess, A., Pergami, A., Hulme, N., Gazzard, B., & Phillips, R. (1996). The psychological impact on staff of caring for people with serious diseases: the case of HIV infection and oncology. *Journal of Psychosomatic Research, 40*, 425-435.

Cattell, R. (1966). The scree test for the number of factors. *Multivariate Behavioural Research, 1*, 245-276.

Chambers, R., & Belcher, J. (1992). Self-reported health care over the past ten years: a survey of general practitioners. *British Journal of General Practice, 42*, 153-156.

Chambers, R., & Campbell, I. (1996). Anxiety and depression in general practitioners: associations with type of practice, fundholding, gender and other personal characteristics. *Family Practice, 13*, 170-173.

Charlton, J. (1995). Trends and patterns in suicide in England and Wales. *International Journal of Epidemiology, 24, Supplement 1*, S45-52.

Charlton, J., Kelly, S., Dunnell, K., Evans, B., & Jenkins, R. (1993). Suicide deaths in England and Wales: trends in factors associated with suicide deaths. *PopulationTrends, 69*, 34-42.

Chen, P., & Spector, P. (1991). Negative affectivity as the underlying cause of correlations between stressors and strains. *Journal of Applied Psychology, 76*, 398-407.

Cherniss, C. (1980). *Staff burnout: job stress in human services*. Beverly Hills, Ca: Sage Publications.

Christensen, J., Levinson, W., & Dunn, P. (1992). The heart of darkness: the impact of perceived mistakes on physicians. *Journal of General Internal Medicine, 7*, 424-431.

Clarke, J., O'Sullivan, Y., & Maguire, N. (1998). A study of self-care among Irish doctors. *Irish Medical Journal, 91*, 175-176.

Clarke, T., Maniscalo, W., Taylor-Brown, S., Roughman, K., Shapiro, D., & Hannon-Johnson, C. (1984). Job satisfaction and stress among neonatologists. *Pediatr, 74*(1), 52-57.

Cohen, S., & Ashby Wills, T. (1985). Stress, social support and the buffering hypothesis. *Psychological Bulletin, 98*(2), 310-357.

Cohen, S., Kessler, R., & Underwood Gordon, L. (1995). Strategies for measuring stress in studies of psychiatric and physical disorders. In S. Cohen, R. Kessler, & L. Underwood Gordon (Eds.), *Measuring stress* . New York: Oxford University Press.

Cooper, C. (1983). Identifying stressors at work: recent research developments. *Journal of Psychosomatic Research, 27*(5), 369-376.

Cooper, C., Clarke, S., & Rowbottom, A. (1999). Occupational stress, job satisfaction and well-being in anaesthetists. *Stress Medicine, 15*, 115-126.

Cooper, C., Cooper, R., & Eaker, L. (1988a). *Living with stress.* London: Penguin Books.

Cooper, C., & Marshall, J. (1976). Occupational sources of stress: a review of the literature relating to coronary heart disease and mental ill health. *Journal of Occupational Psychology, 49*, 11-28.

Cooper, C., Rout, U., & Faragher, B. (1989). Mental health, job satisfaction, and job stress among general practitioners. *BMJ, 298*, 366-370.

Cooper, C., Sloan, S., & Williams, S. (1988b). *Occupational Stress Indicator management guide*. Windsor: NFER-Nelson.

Corcoran, K. (1995). Measuring burnout: an updated reliability and convergent validity study. *Occupational Stress: a handbook.* (2nd edition). Washington DC: Taylor & Francis Inc.

Cordes, C., & Dougherty, T. (1993). A review and integration of research on job burnout. *Academy of Management Review, 18*, 621-656.

Costa, P., & McCrae, R. (1992). *Revised NEO Personality Inventory and NEO five-factor inventory: professional manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Cox, T. (1978). *Stress.* London: Macmillan.

Cox, T. (1985). The nature and measurement of stress. *Ergonomics, 28*, 1155-1163.

Cox, T., Kuk, G., & Leiter, M. (1993). Burnout, health, work stress and organizational healthiness. In W. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: recent developments in theory and research* . Washington DC: Taylor & Francis.

Crown, S., & Crisp, A. (1979). *Manual of the Crown-Crisp Experiential Index.* London: Hodder and Stoughton.

Cushaway, D., & Tyler, P. (1996). Stress in clinical psychologists. *International Journal of Social Psychiatry, 42*, 141-149.

De Jonge, J., & Schaufeli, W. (1998). Job characteristics and employee well-being: a test of Warr's Vitamin Model in health-care workers using structural equation modelling. *Journal of Organizational Behaviour, 19*, 387-407.

Deary, I., Agius, R., & Sadler, A. (1996a). Personality and stress in consultant psychiatrists. *International Journal of Social Psychology, 42*, 112-123.

Deary, I., Blenkin, H., Agius, R., Endler, N., Zealley, H., & Wood, R. (1996b). Models of job-related stress and personal achievement among consultant doctors. *British Journal of Psychology, 87*, 3-29.

Delvaux, N., Razavi, D., & Farvacques, C. (1988). Cancer care - a stress for health professionals. *Social Science and Medicine, 27*(2), 159-166.

Department of Health. (1991). *The Patients' Charter* . London: HMSO.

Department of Health. (1998a). *A first class service: quality in the new NHS* . London: Department of Health.

Department of Health. (1998b). *The Health of the Nation.* London: HMSO.

Department of Health. (1999a). *Supporting doctors, protecting patients: a consultation paper on preventing, recognising, and dealing with poor clinical performance of doctors in England* . London: DoH.

Derogatis, I. (1977). *SCL-90 administration, scoring and procedures manual.* Cambridge, Mass: Harvard University Press.

Derogatis, L., Lipman, R., & Covi, M. (1973). SCL-90: an outpatient psychiatric rating scale - preliminary report. *Psychopharmacology Bulletin, 9*, 13-20.

Edwards, J., & Baglioni, A. (1990). Stress, Type-A, coping, and psychological and physical symptoms: a multi-sample test of alternative models. *Human Relations, 43*, 919-956.

Eisenstat, R., & Felner, R. (1984). Toward a different view of burnout: personal and organizational mediators of job satisfaction and stress. *American Journal of Community Psychology, 12*(4), 411-430.

Endler, N., & Parker, J. (1990). Multidimentional assessment of coping: a critical evaluation. *Journal of Personality and Social Psychology, 58*, 844-854.

Evans, B., & Fischer, D. (1993). The nature of burnout: a study of three-factor model of burnout in human service and non-human service samples. *Journal of Occupational and Organizational Psychology, 66*, 29-38.

Firth, J. (1986). Levels and sources of stress in medical students. *BMJ, 292*, 533-536.

Firth-Cozens, J. (1987). Emotional distress in junior house officers. *BMJ, 295*, 533-536.

Firth-Cozens, J. (1989). Stress in medical undergraduates and house officers. *British Journal of Hospital Medicine, 41*, 161-64.

Firth-Cozens, J. (1990). Sources of stress in women junior house officers. *BMJ, 301*, 89-91.

Firth-Cozens, J. (1992). The role of early family experience in the perception of organisational stress - fusing clinical and organisation perspectives. *Journal of Occupational and Organizational Psychology, 65*, 61-75.

Firth-Cozens, J., & Greenhalgh, J. (1997). Doctors' perceptions of the links between stress and lowered clinical care. *Social Science and Medicine, 44*, 1017-1022.

Flaherty, J., & Richman, J. (1986). Physician malaise: the discovery and social aetiology of psychiatric impairment among doctors. *International Journal of Social Psychiatry, 32*, 31-37.

Forsythe, M., Calnan, M., & Wall, B. (1999). Doctors as patients: postal survey examining consultants and general practitioners adherence to guidelines. *BMJ, 319*, 605-608.

Frese, M., & Zapf, D. (1988). Methodological issues in the study of work stress: objective vs subjective measurement of work stress and the question of longitudinal studies. In C. Cooper & R. Payne (Eds.), *Causes, coping and consequences of stress at work* . London: John Wiley & Sons Ltd.

Freudenberger, H. (1974). Staff burn-out. *Journal of Social Issues, 30*(1), 159-165.

Gabbard, G. (1985). The role of compulsiveness in the normal physician. *Journal of the American Medical Association, 254*, 2926-2929.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. New York: Alding.

Glass, D., McKnight, J., & Valdimarsdottir, H. (1993). Depression, burnout and perceptions of control in hospital nurses. *Journal of Consulting and Clinical Psychology, 61*, 147-155.

Goldberg, D., Cooper, B., Eastwood, M., Kedward, H., & Shepherd, M. (1970). A standardised psychiatric interview for use in community surveys. *British Journal of Preventive and Social Medicine, 24*, 18-23.

Goldberg, D., & Williams, P. (1988). *A users guide to the General Health Questionnaire.* Berkshire: NFER-Nelson Publishing Co.

Goldman, L., McDonough, M., & Rosemond, G. (1972). Stresses affecting surgical performance and learning. *Journal of Surgical Research, 12*, 83-86.

Golembiewski, R., Munzenrider, R., & Carter, D. (1983). Phases of progressive burnout and their work site covariants: critical issues in OD research and praxis. *The Journal of Applied Behavioural Sciences, 19*(4), 461-481.

Goodchild, M., & Duncan-Jones, P. (1985). Chronicity and the General Health Questionnaire. *British Journal of Psychiatry, 146*, 55-61.

Graham, J., Ramirez, A., Cull, A., Finlay, I., Hoy, A., & Richards, M. (1996). Job stress and satisfaction among palliative physicians. *Palliative Medicine, 10*, 185-194.

Grainger, C., Harries, E., Temple, J., & Griffiths, R. (1995). Job satisfaction and health of house officers in the West Midlands. *Health Trends, 27*, 27-30.

Grainger, C., Harries, E., Temple, J., & Griffiths, R. (1996). Junior doctors' job satisfaction and health: changes with seniority. *Health Trends, 28*, 132-134.

Green, A., Duthie, H., Young, H., & Peters, T. (1990). Stress in surgeons. *British Journal of Surgery, 77*, 1154-1158.

Green, D., Walkey, F., & Taylor, A. (1991). The three factor structure of the Maslach burnout inventory: a multicultural, multinational confirmatory study. *Journal of Social Behaviour and Personality, 6*(3), 453-472.

Gupchup, G., Lively, B., Holiday-Goodman, M., Siganga, W., & Black, C. (1994). Maslach Burnout Inventory: factor structures for pharmacists in health maintenance organisations and comparison with normative data for USA pharmacists. *Psychological Reports, 74*, 891-895.

Guthrie, E., Tattan, T., Williams, E., Black, D., & Bacliocotti, H. (1999). Sources of stress, psychological distress and burnout in psychiatrists. *Psychiatric Bulletin, 23*, 207-212.

Hackman, J., & Oldham, G. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology, 60*, 159-170.

Hackman, J., & Oldham, G. (1976). Motivation through the design of work: Test of a theory. *Organisational Behaviour and Human Performance, 16*, 250-279.

Harrison, J., & Maguire, P. (1994). Predictors of psychiatric morbidity in cancer patients. *British Journal of Psychiatry, 165*, 593-598.

Heaven, C., Maguire, P., & Clegg, J. (1998). Impact of communication skills training on self-efficacy, outcome expectancy, and burnout. *Psycho-Oncology, 7*, 61.

Heim, E. (1991). Job stressors and coping in health professionals. *Psychotherapy and Psychosomatics, 55*, 90-99.

Hepburn, C., Loughlin, C., & Barling, J. (1997). Coping with chronic work stress. In B. Gottlieb (Ed.), *Coping with chronic stress* . New York: Plenum Press.

Herzberg, F. (1966). *Work and the nature of man*: World Publishing Service.

Herzberg, F., Mausner, B., & Snyderman, B. (1959). *The motivation to work*. New York: Wiley.

Heyworth, J., Whitley, T., Allison, E., & Revicki, D. (1993a). Predictors of work satisfaction among SHOs during accident and emergency training. *Archives of Emergency Medicine, 10*, 279-288.

Heyworth, J., Whitley, W., Allison, E., & Revicki, D. (1993b). Correlates of work-related stress among consultants and senior registrars in accident and emergency medicine. *Archives of Emergency Medicine, 10*, 271-278.

Hirschfeld, R., & Cross, C. (1982). Epidemiology of affective disorders. *Archives of General Psychiatry, 39*, 35-46.

Hodgkiss, A., & Ramirez, A. (2000). Mental health of the National Health Service medical workforce. In R. Peveler, E. Feldman & T. Friedman (Eds.), *Liaison Psychiatry: planning services* for specialist settings. London: Gaskell Press.

Holmes, T., & Rahe, R. (1967). The social readjustment scale. *Journal of Psychosomatic Research, 11*, 213-218.

House, J., Robbins, C., & Metzner, H. (1982). The association of social relationships and activities with mortality: prospective evidence from the Tecumseh Community Health Study. *American Journal of Epidemiology, 116*, 123-140.

Houston, D., & Allt, S. (1997). Psychological distress and error making among junior house officers. *British Journal of Health Psychology, 2*, 141-151.

Hurrell, J., Nelson, D., & Simmons, B. (1998). Measuring job stressors and strains: where we have been, where we are, and where we need to go. *Journal of Occupational Health Psychology, 3*(4), 368-389.

Iffaldano, M., & Muchinsky, P. (1985). Job satisfaction and job performance: a meta-analysis. *Psychological Bulletin, 97*, 251-273.

Inc, S. (1990). *SPSS Reference Guide*. Chicago: SPSS Inc.

Jackson, S., Schwab, R., & Schuler, R. (1986). Toward an understanding of the burnout phenomenon. *Journal of Applied Psychology, 71*(4), 630-640.

Jenkins, R. (1985). Sex differences in minor psychiatric morbidity. *Psychological Medicine, Monograph Supplement 7*, 3-53.

Jenkins, R., Lewis, G., Bebbington, P., Brugha, T., Farrell, M., Gill, B., & Meltzer, H. (1997). The national psychiatric morbidity surveys of Great Britain - initial findings from the Household Survey. *Psychological Medicine, 27*, 775-789.

Jerusalem, M. (1993). Personal resources, environmental constraints, and adaptational processes: the predictive power of a theoretical stress model. *Personality and Individual Differences, 14*, 15-24.

Jex, S., Hughes, P., Storr, C., Baldwin, D., Conard, S., & Sheehan, D. (1991). Behavioural consequences of job-related stress among resident physicians: the mediating role of psychological strain. *Psychological Reports, 69*, 339-349.

Johnson, W. (1991). Predisposition to emotional distress and psychiatric illness among doctors: The role of unconscious and experiential factors. *British Journal of Medical Psychology, 64*, 317-29.

Kapur, N., Borrill, C., & Stride, C. (1998). Psychological morbidity and job satisfaction in hospital consultants and junior house officers: multicentre, cross sectional survey. *BMJ, 317*, 511-512.

Karasek, R. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24*, 285-308.

Karasek, R. (1985). *Job Content Questionnaire and user's guide*. Los Angeles: University of Southern California, Department of Industrial and Systems Engineering.

Karasek, R., & Theorell, T. (1990). *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books.

Kendell, R. (1993). Mood (affective) disorders. In R. Kendell & A. Zealley (Eds.), *Companion to psychiatric studies* . Edinburgh: Churchill Livingstone.

Kirkcaldy, B., Cooper, C., & Brown, J. (1995). The role of coping in the stress-strain relationship among senior police officers. *International Journal of Stress Management, 2*(2), 69-78.

Kirwan, M., & Armstrong, D. (1995). Investigation of burnout in a sample of British general practitioners. *British Journal of General Practice, 45*, 259-260.

Kristensen, T. (1995). The demand-control-support model: methodological challenges for future research. *Stress Medicine, 11*, 17-26.

Kristensen, T. (1996). Job stress and cardiovascular disease: a theoretic critical review. *Journal of Occupational Health Psychology, 1*, 246-260.

Kromrey, J., & Hines, C. (1994). Nonrandomly missing data in multiple regression: an empirical comparison of common missing-data treatments. *Educational and Psychological Measurement, 54*, 573-593.

Lazarus, R., & Folkman, S. (1984). *Stress, Appraisal and Coping.* New York: Springer.

Lee, R., & Ashforth, B. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.

Leiter, M. (1993). Burnout as a developmental process: consideration of models. In W. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: recent developments in theory and research* . Washington DC: Taylor & Francis.

Leiter, M., & Durup, J. (1994). The discriminant validity of burnout and depression: a confirmatory factor analytic study. *Anxiety, Stress and Coping, 7*, 357-373.

Leiter, M., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational committment. *Journal of Organizational Behavouir, 9*, 297-308.

Lemkau, J., Purdy, R., Rafferty, J., & Rudiscill, J. (1988). Correlates of burnout among family practice residents. *J Med Educ, 63*(9), 682-91.

Levine, F., & De Simone, LL. (1991). The effects of experimenter gender on pain report in male and female subjects. *Pain, 44*, 69-72.

Lewis, G., Pelosi, A., Araya, R., & Dunn, G. (1992). Measuring psychiatric disorder in the community: a standardized assessment for use by lay interviewers. *Psychological Medicine, 22*, 465-486.

Lief, H. (1971). Personality characteristics of medical students. In R. Coombs & C. Vincent (Eds.), *Psychosocial aspects of medical training* . Springfield, Il: Thomas.

Lindeman, S., Laara, E., Hakko, H., & Lonnqvist, J. (1996). A systematic review on gender-specific suicide mortality in medical doctors. *British Journal of Psychiatry, 168*, 274-279.

Linn, B., & Zeppa, R. (1984). Does surgery attract students who are more resistant to stress? *Annals of Surgery, 200*, 638-643.

Locke, E. (1976). The nature and causes of job satisfaction. In M. Dunnette (Ed.), *Handbook of Industrial and Organizational Psychology*. Chicago, Illinois: Rand McNally.

Lodahl, T., & Kejner, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology, 49*, 24-33.

Loher, B., Noe, R., Moeller, N., & Fitzgerald, M. (1985). A meta-analysis of the relation of job characteristics to job satisfaction. *Journal of Applied Psychology, 70*, 280-289.

Lopez, J., & Meyer, C. (1985). Caring for patients with cancer: how stressful is it for the physician? *Comprehensive Therapy, 11*, 68-70.

Makin, P., Rout, U., & Cooper, C. (1988). Job satisfaction and occupational stress among general practitioners - a pilot study. , *38*, 303-306.

Mari, J., & Williams, P. (1985). A comparison of the validity of two psychiatric screening questionnaires (GHQ-12 and SRQ-20) in Brazil, using Relative Operating Characteristic (ROC) analysis. *Psychological Medicine, 15*, 651-659.

Maslach, C. (1976). Burned-out. *Human Behaviour, September 5*, 16-22.

Maslach, C., & Jackson, S. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior, 2*, 99-113.

Maslach, C., & Jackson, S. (1982). Burnout in health professions: a social psychological analysis. In G. Sanders & J. Suls (Eds.), *Social psychology of health and illness* . Hillside, NJ: Erlbaum.

Maslach, C., & Jackson, S. (1984). Burnout in organizational settings. In S. Oskamp (Ed.), *Applied social psychology annual: applications in organizational settings* (Vol. 5, pp. 133-153). Beverly Hills, CA: Sage.

Maslach, C., & Jackson, S. (1986). *Maslach Burnout Inventory.* (2nd ed.). Palo Alto, California: Consulting Psychologist's Press.

Maslach, C., Jackson, S., & Leiter, M. (1996). *Maslach Burnout Inventory Manual.* (3rd ed.). Palo Alto, California: Consulting Psychologists Press, Inc.

Maslach, C., & Schaufeli, W. (1993). Historical and conceptual development of burnout. In W. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: recent developments in theory and research* . Washington DC: Taylor & Francis.

Maslow, A. (1970). *Motivation and Personality.* London: Harper and Row.

Mawardi, B. (1979). Satisfactions, dissatisfactions, and causes of stress in medical practice. *Journal of the American Medical Association, 241*, 1483-1486.

Maxwell, A. (1973). Psychiatric illness: some inferences from symptomatology. *British Journal of Psychiatry, 122*, 252-258.

Mayou, R. (1987). Burnout. *BMJ, 295*, 284-285.

McCranie, E., & Brandsma, J. (1988). Personality antecedents of burnout among middle-aged physicians. *Behavioural Medicine, 14*, 30-36.

McGrath, J. (1970). A conceptual formulation for research of stress. In J. McGrath (Ed.), *Social and psychological factors in stress* . New York: Holt, Rinehart, and Winston.

McNair, D., Lorr, M., & Doppleman, L. (1971). *Manual for the Profile of Mood States.* San Diego, California: Educational and Industrial Testing Service.

Medical Workforce Standing Advisory Committee. (1997). *Planning the medical workforce* (Third report). London: Department of Health.

Meier, S. (1983). Toward a theory of burnout. *Human Relations, 36*(10), 899-910.

Meier, S. (1984). The construct validity of burnout. *Journal of Occupational Psychology, 57*, 211-219.

Millon, T. (1976). *Millon Clinical Multiaxial Inventory - MCMI*. Minneapolis, Minnesota: National Computer Systems.

Mizgala, C., Mackinnon, S., Walters, B., Ferris, L., McNeill, I., & Knighton, T. (1993). Women surgeons. Results of the Canadian Population Study. *Annals of Surgery, 218*(1), 37-46.

Molassiotis, A., & van der Akker, O. (1995). Psychological stress in nursing and medical staff on bone marrow transplant units. *Bone Marrow Transplantation, 15*, 449-454.

Moos, R. (1981). *Work Environment Scale manual*. Palo Alto, Ca: Consulting Psychologists Press.

Muldary, T. (1983). *Burnout in health professionals*. Garden Grove, Ca: Capistrano Press.

Mulholland, H., & Muir, A. (1998). Time to care. *Health Bulletin, 56*, 576-585.

Murray, R. (1977). Psychiatric illness in male doctors and controls: an analysis of Scottish hospital in-patient data. *British Journal of Psychiatry, 131*, 1-10.

Myers, D., & Diener, E. (1995). Who is happy? *Psychological Science, 6*, 10-19.

Myers, I. (1987). *Introduction to type: a description of the theory and applications of the Myers-Briggs Type Indicator*. Palo Alto, Ca: Consulting Psychologists Press.

North, C., & Ryall, J. (1997). Psychiatric illness in female physicians. *Postgraduate Medicine, 101*, 233-242.

OPCS. (1995). *Occupational Mortality 1979-80, 1982-90*. London: Office of Population Census & Surveys.

Oppenheim, A. (1992). *Questionnaire design, interviewing and attitude measurement*. London: Pinter Publishers Ltd.

Paine, W. (1984). Professional burnout: some major costs. *Family and Community Health, Feb*, 1-11.

Pan, P., & Goldberg, D. (1990). A comparison of the validity of the GHQ-12 and CHQ-12 in Chinese primary care patients in Manchester. *Psychological Medicine, 20*, 931-940.

Parker, P., & Kulik, J. (1995). Burnout, self- and supervisor-rated job performance, and absenteeism among nurses. *Journal of Behavioural Medicine, 18*, 581-599.

Paykel, E., & Cooper, Z. (1992). Life events and social stress. In E. Paykel (Ed.), *Handbook of affective disorders* (2nd ed.,). Edinburgh: Churchill-Livingstone.

Payne, R. (1999). Stress at work: a conceptual framework. In J. Firth-Cozens & R. Payne (Eds.), *Stress in health professionals: psychological and organisational causes and interventions* . Chichester: Wiley.

Perlman, B., & Hartman, E. (1982). Burnout: summary and future research. *Human Relations, 35*(4), 283-305.

Peteet, J., Murray, R., Medeiros, C., Walsh-Burke, K., Rieker, P., & Finkelstein, D. (1989). Job stress and satisfaction among the staff members at a cancer centre. *Cancer, 64*, 975.

Petticrew, A., Fraser, J., & Regan, M. (1999). Adverse life-events and risk of breast cancer: a meta analysis. *British Journal of Health Psychology, 4*, 1-17.

Petty, M., McGee, G., & Cavender, J. (1984). A meta-analysis of the relationship between individual job satisfaction and individual performance. *Academy of Management Review, 9*, 712-721.

Pines, A., & Aronson, E. (1988). *Career burnout: causes and cures*. New York: Free Press.

Pines, A., Aronson, E., & Kafry, D. (1981). *Burnout: from tedium to personal growth*. New York: Free Press.

Purdy, R., Lemkau, J., Rafferty, J., & Rudisill, J. (1987). Resident physicians in family practice: Who's burned out and who knows? *Family Medicine, 19*, 203-208.

Quick, J., & Quick, J. (1984). Stress in organizations. In J. Quick & J. Quick (Eds.), *Organizational stress and preventive management*. New York: McGraw-Hill.

Radloff. (1977). The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychosocial Measurement*, 1, 385-401.

Radovanovic, Z., & Eric, L. (1983). Validity of the General Health Questionnaire in a Yugoslav student population. *Psychological Medicine, 13*, 205-207.

Rafferty, J., Lemkau, J., Purdy, R., & Rudisill, J. (1986). Validity of the Maslach Burnout Inventory for family practice physicians. *Journal of Clinical Psychology, 42*(3), 488-492.

Ramirez, A., Graham, J., Richards, M., Cull, A., Gregory, W., Leaning, M., Snashall, D., & Timothy, A. (1995). Burnout and psychiatric disorder among cancer clinicians. *British Journal of Cancer, 71*, 1263-1269.

Rankin, H., Serieys, N., & Elliott-Binns, CP. (1987). Determinants of mood in general practitioners. *BMJ, 294*, 618-620.

Rees, D., & Cooper, C. (1992). Occupational stress in health service workers in the UK. *Stress Medicine, 8*, 79-90.

Revicki, D., & May, H. (1985). Occupational stress, social support and depression. *Health Psychology, 4*, 61-77.

Revicki, D., May, H., & Whitley, T. (1991). Reliability and validity of the Work-Related Strain Inventory among health professionals. *Behavioural Medicine, 17*, 111-120.

Revicki, D., Whitley, T., & Gallery, M. (1993). Organizational characteristics, perceived work stress, and depression in emergency medicine residents. *Behavioural Medicine, 19*, 74-81.

Richardsen, A., & Burke, R. (1991). Occupational stress and job satisfaction among physicians: sex differences. *Social Science & Medicine, 33*, 1179-1187.

Richardsen, A., & Burke, R. (1995). Models of burnout: implications for interventions. *International Journal of Stress Management, 2*(1), 31-43.

Roberts, G. (1986). Burnout: psychobabble or valuable concept. *British Journal of Hospital Medicine, 36*(3), 194-197.

Rowe, M. (1997). Hardiness, stress, temperament, coping, and burnout in health professionals. *American Journal of Health Behaviour, 21*, 163-171.

Royal College of Radiologists. (1993). *Medical staffing and workload in Clinical Radiology in the United Kingdom National Health Service* . London: Faculty of Clinical Radiology of the Royal College of Radiologists.

Rucinski, J., & Cybulska, E. (1985). Mentally ill doctors. *British Journal of Hospital Medicine, 33*, 90-94.

Schaufeli, W. (1999). Burnout. In J. Firth-Cozens & R. Payne (Eds.), *Stress in health professionals: psychological and organisational causes and interventions* . Chichester: John Wiley & Sons Ltd.

Schaufeli, W., Daamen, J., & Van Mierlo, H. (1994). Burnout among Dutch teachers: an MBI validity study. *Educational and Psychological Measurement, 54*, 803-812.

Schaufeli, W., Enzmann, D., & Girault, N. (1993). Measurement of burnout: a review. In W. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: recent developments in theory and research* . Washington DC: Taylor & Francis.

Schaufeli, W., & van Dierendonck, D. (1993). The construct validity of two burnout measures. *Journal of Organisational Behaviour, 14*, 631-647.

Schaufeli, W., & van Dierendonck, D. (1995). A cautionary note about the cross-national and clinical validity of cut-off points for the Maslach Burnout Inventory. *Psychological Reports, 76*, 1083-1090.

Schaufeli, W., van Dierendonck, D., & van Gorp, K. (1996). Burnout and reciprocity: towards a dual-level social exchange model. *Work and Stress, 10*(3), 225-237.

Scheiber, S. (1987). Stress in physicians. In R. Payne & J. Firth-Cozens (Eds.), *Stress in health professionals* . Chichester: John Wiley & Sons Ltd.

Schnall, P., Landsbergis, P., & Baker, D. (1994). Job strain and cardiovascular disease. *Annual Review of Public Health, 15*, 381-411.

Schonfield, I. (1996). Relation of negative affectivity to self-reports of job stressors and psychological outcomes. *Journal of Occupational Health Psychology, 1*, 397-412.

Schwartz, M., & Will, G. (1953). Low morale and mutual withdrawal on a mental hospital ward. *Psychiatry, 16*, 339-353.

Secretary of State for Health. (1999). *Saving lives: our healthier nation*. London: The Stationery Office.

Selye, H. (1946). The general adaptation syndrome and diseases of adaptation. *Journal of Clinical Endocrinology, 6*, 117-230.

Selye, H. (1956). *The stress of life*. New York: McGraw-Hill.

Selye, H. (1967). *Stress in health and disease*. Boston: Butterworth.

Sethi, A., & Schuler, R. (1984). *Handbook of organizational stress coping strategies*. Cambridge, Mass: Ballinger.

Shamasundar, C., Krishna Murthy, S., Prakash, O., Prabhakar, N., & Subba Krishna, D. (1986). Psychiatric morbidity in a general practice in an Indian city. *BMJ, 292*, 1713-1715.

Shirom, A. (1989). Burnout in work organizations. In C. Cooper & I. Robertson (Eds.), *International Review of Industrial and Organisational Psychology.* Chicester: John Wiley and Sons.

Simpson, L., & Grant, L. (1991). Sources and magnitude of job stress among physicians. *Journal of Behavioural Medicine, 14*, 27-42.

Smith, R. (1998). All changed, changed utterly. *BMJ, 316*, 1917-1918.

Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P., & Jacobs, G. (1983). *Manual for the State-Trait Anxiety Inventory.* Palo Alto, California: Counselling Psychologists Press.

Spurgeon, A., & Harrington, J. (1989). Work performance and health of junior hospital doctors - a review of the literature. *Work & Stress, 3*, 117-128.

Stansfield, S., & Marmot, M. (1992). Social class and minor psychiatric disorder in British Civil Servants: a validated screening survey using the General Health Questionnaire. *Psychological Medicine, 22*, 739-749.

StataCorp. (1997). *STATA statistical software.* College Station, Texas: Stata Corporation.

Stoline, A., & Weiner, J. (1988). *The new medical marketplace.* Baltimore: John Hopkins University Press.

Surtees, P., & Kendell, R. (1979). The hierarchy model of psychiatric symptomatology: an investigation based on Present State Examination ratings. *British Journal of Psychiatry, 135*, 438-443.

Sutherland, V., & Cooper, C. (1992). Job stress, satisfaction, and mental health among general practitioners before and after introduction of new contract. *BMJ, 304*, 1545-1548.

Sutherland, V., & Cooper, C. (1993). Identifying distress among General Practitioners: predictors of psychological ill-health and job dissatisfaction. *Social Science and Medicine, 37*(5), 575-581.

Swanson, V., Power, K., & Simpson, R. (1996). A comparison of stress and job satisfaction in female and male GPs and consultants. *Stress Medicine, 12*, 17-26.

Tabachnick, B., & Fidell, L. (1989). *Using multivariate statistics.* New York: Harper Collins.

Tattersall, A., Bennett, P., & Pugh, S. (1999). Stress and coping in hospital doctors. *Stress Medicine, 15*, 109-113.

Theorell, T., & Karasek, R. (1996). Current issues relating to psychological job strain and cardiovascular disease research. *Journal of Occupational Health Psychology, 1*, 9-26.

Turner, R. (1981). Social support as a contingency in psychological well-being. *Journal of Health and Social Behaviour, 22*, 357-367.

Ullrich, A., & Fitzgerald, P. (1990). Stress experienced by physicians and nurses in the cancer ward. *Social Science and Medicine, 31*, 1013-1022.

Umberson, D., & Williams, K. (1999). Family status and mental health. In C. Aneshensel & J. Phelan (Eds.), *Handbook of sociology and social research.* New York: Kluwer Academic/Plenum Publishers.

Vachon, M. (1979). Staff stress in the care of the terminally ill. *Quality Review Bulletin*, 13-17.

Vaillant, G., Sobowale, N., & McArthur, C. (1972). Some psychologic vulnerabilities of physicians. *New England Journal of Medicine, 287*, 372-375.

van Dierendonck, D., Schaufeli, W., & Sixma, H. (1994). Burnout among general practitioners: a perspective from equity theory. *Journal of Social and Clinical Psychology, 13*, 86-100.

Van Hemert, A., Den Heijer, M., Vorstenbosch, M., & Bolk, J. (1995). Detecting psychiatric disorders in medical practice using the General Health Questionnaire. Why do cut-off scores vary? *Psychological Medicine, 25*, 165-170.

Vincent, C., Taylor-Adams, S., & Stanhope, N. (1998). Framework for analysing risk and safety in clinical medicine. *BMJ, 316*, 1154-1157.

Wall, T., Bolden, R., Borrill, C., Carter, A., Golya, D., Hardy, G., Haynes, C., Rick, J., Shapiro, D., & West, M. (1997). Minor psychiatric disorder in NHS trust staff: occupational and gender differences. *British Journal of Psychiatry, 171*, 519-523.

Wall, T., Jackson, P., Mullarkey, S., & Parker, S. (1996). The demands-control model of job strain: a more specific test. *Journal of Occupational and Organizational Psychology, 69*, 153-166.

Waring, E. (1974). Psychiatric illness in physicians: a review. *Comprehensive Psychiatry, 15*, 519-530.

Warr, P. (1987). *Work, unemployment and mental health*. Oxford: Clarendon Press.

Warr, P., Cook, J., & Wall, T. (1979). Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology, 52*, 129-148.

Warr, P., & Wall, T. (1975). *Work and well-being*. Harmondsworth, Middx: Penguin.

Watson, D., & Clarke, L. (1984). Negative affectivity: the predisposition to experience aversive emotional states. *Psychological Bulletin, 96*, 465-498.

Webb, E., Ashton, C., Kelly, P., & Kamali, F. (1996). Alcohol and drug use in UK university students. *Lancet, 348*, 922-925.

Weinberg, A. (1999). *Sources of stress in the National Health Service workforce*. Unpublished PhD thesis, University of Manchester, Manchester.

Weinberg, A., & Creed, A. (2000). Stress and psychiatric disorder in healthcare professionals and hospital staff. *Lancet, 355*, 533-537.

Whippen, D., & Canellos, G. (1991). Burnout syndrome in the practice of oncology: results of a random survey of 1,000 oncologists. *Journal of Clinical Oncology, 9*(10), 1916-1920.

Whitley, T., Allison, E., Gallery, M., Heyworth, J., Cockington, R., Gaudry, P., & Revicki, R. (1991). Work-related stress and depression among physicians pursuing postgraduate training in emergency medicine: an international study. *Annals of Emergency Medicine, 20*, 992-996.

Williams, S., Dale, J., Gluckman, E., & Wellesley, A. (1997). Senior house officers' work-related stressors, psychological distress and confidence in performing clinical tasks in accident and emergency: a questionnaire study. *British Medical Journal, 314*, 713-718.

Williams, S., Michie, S., & Pattani, S. (1998). *Improving the health of the NHS workforce.* London: The Nuffield Trust.

Winefield, H., & Anstey, T. (1991). Job stress in general practice: practitioner age, sex and attitudes as predictors. *Family Practice, 8*, 140-44.

Wing, J., Cooper, J., & Sartorius, N. (1974). *Measurement and classification of psychiatric symptoms.* Cambridge: Cambridge University Press.

Wolfgang, A. (1988). Job stress in the health professions: A study of physicians, nurses and pharmacists. *Behavioural Medicine, 14*, 43-47.

Wright, T., & Bonett, D. (1997). The contribution of burnout to job performance. *Journal of Organizational Behaviour, 18*, 491-499.

Wright, T., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology, 5*, 84-94.

Wu, A. (2000). Medical error: the second victim. *BMJ, 320*, 726-727.

Zigmond, A., & Snaith, R. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica, 67*, 361-370.

Zung, W. (1965). A self-rating depression scale. *Archives of General Psychiatry, 12*, 63-70.

Appendix A - Members of the expert panel

Professor Amanda Ramirez, Professor of Liaison Psychiatry, St Thomas' Hospital, London

Dr Michael Richards, Reader in Medical Oncology (now Professor of Palliative Medicine and National Cancer Director), St Thomas' Hospital, London

Dr Ann Cull, Clinical Psychologist, Western General Hospital, Edinburgh

Professor Michael Whitehouse, Chairman, Standing Committee of Medical Oncology, Royal College of Physicians

Dr Adrian Timothy, Consultant Radiotherapist and Oncologist, St Thomas' Hospital, London

Dr Jane Maher, Consultant Clinical Oncologist, Mount Vernon Hospital, Middlesex

Professor Stuart Field, Dean, Faculty of Clinical Radiology, Royal College of Radiologists

Mr Tim Allen-Mersh, Vice President, British Association of Surgical Oncology

Professor Michael Farthing, Secretary, British Society of Gastroenterology

Dr David Snashall, Senior Lecturer in Occupational Health, St Thomas' Hospital

Professor Sidney Brandon, Professor of Psychiatry

Professor R Wood, Royal College of Physicians

Dr Walter Gregory, Senior Lecturer in Medical Statistics

Professor Gordon McVie, Director, Scientific Department, Cancer Research Campaign

Ms Jean King, Head of Education, Cancer Research Campaign

Professor Nicholas Wright, Imperial Cancer Research Fund.

Appendix B - Terms for literature search

- Doctor, or Physician, or Hospital consultant and:
    - Stress (near) (Job, or Profession, or Business, or Vocation, or Occupation)
    - Tension (near) (Job, or Profession, or Business, or Vocation, or Occupation)
    - Satisfaction (near) (Job, or Profession, or Business, or Vocation, or Occupation)
    - Contentment (near) (Job, or Profession, or Business, or Vocation, or Occupation)
    - Burnout, or Tiredness, or Wellbeing
    - Psychiatric (near) Morbidity
    - Mental (near) Health
    - Psychological (near) Distress
    - Emotional (near) Distress

Appendix C - Interview schedule

INTERVIEW SCHEDULE

POTENTIAL SOURCES OF WORK-RELATED DISTRESS AND SATISFACTION IN SENIOR ONCOLOGISTS

INTRODUCTION

The aim of this study is to investigate the levels of work-related distress among senior clinicians in the UK and in particular to compare stress levels across specialties. We also aim to identify the aspects of the work perceived by consultants as causing both distress and satisfaction. The impetus for the study comes from an awareness among the study instigators of the experience of distress and burnout amongst themselves and their colleagues.

Levels of distress will be assessed using standardised questionnaires, to enable comparison and be clinically meaningful. However, in order to identify stressful and satisfying aspects of these particular jobs a study-specific questionnaire has been designed. This questionnaire is based on aspects of working as a senior doctor which have been identified in the literature as being related to distress and satisfaction, together with interviews such as this with consultants from various specialties. The purpose of this interview is to verify that the existing items in the study-specific questionnaires are relevant to the work of senior gastroenterologists and also to find out whether there are any additional sources of stress and satisfaction which consultants in your specialty experience.

How the interview will progress is that I will go through a list of aspects of work which might potentially be a source of stress or satisfaction and will ask you to rate the extent to which each one has contributed to the stress or satisfaction you have experienced in your work over the past few months.

0 = not at all
1 = a little
2 = quite a bit
3 = a lot.

Is it ok for me to tape our conversation? It saves me having to take notes, although I will probably still take a few notes as we go along. I should point out that I alone will have access to the tapes. I will not, of course, discuss the content of the interviews with anyone. Everything you say will be treated with absolute confidentiality and will not be used in a way which could identify you. The information from this interview and the interviews with the other consultants will be used only to construct items for the questionnaire.

If you're happy with everything then I'll make a start.

Rate the **relevance** of each item on a scale of 0 to 3, which combines the severity of the stressful aspect of the job and the time for which it is stressful. If an item is not relevant, why not?

Sources of stress

JOB-SPECIFIC FACTORS

1. Involvement with the physical suffering of patients.	0	1	2	3
2. Involvement with fatal illness/death.	0	1	2	3
3. Involvement with the emotional distress of patients (including anxiety, depression and anger).	0	1	2	3

4. Frustration/sense of responsibility re limited therapeutic success (feeling of failure resulting from inability to cure cancer or control symptoms).	0	1	2	3
5. Sense of responsibility re toxicity caused by treatments.	0	1	2	3
6. Making decisions where mistakes have severe consequences (feeling you must function at maximum level of competence at all times/doubts over competence following a serious mistake).	0	1	2	3
7. Breaking bad news to patients and their relatives.	0	1	2	3
8. Dealing with distressed/angry/blaming relatives.	0	1	2	3
9. Increased threat of being sued for malpractice.	0	1	2	3
10. Ethical dilemmas about clinical or research issues.	0	1	2	3
11. Keeping up to date with current clinical and research issues.	0	1	2	3

RELATIONSHIPS AT WORK

1. Relationships with consultant colleagues (personality clashes, lack of support, disagreement over management/ clinical/research issues, poor communication).	0	1	2	3
2. Relationships with junior medical staff (eg poor communication).	0	1	2	3
3. Relationships with nurses (eg disagreements re treatment decisions, poor communication).	0	1	2	3
4. Relationships with administrative staff, eg secretaries.	0	1	2	3

ROLE IN THE ORGANISATION/ORGANISATIONAL STRUCTURE

1. Having too great an overall volume of work.	0	1	2	3

2. Having conflict of commitments, in terms of time, to different organisations/functions (eg patient care, research, management, the College).	0	1	2	3
3. Having inadequate resources/facilities to do your job (manpower and hardware).	0	1	2	3
4. Feeling you have insufficient input into management decisions affecting your work.	0	1	2	3
5. Increased management of clinical activities by non-doctors.	0	1	2	3
6. Increased need to take on managerial responsibilities, (eg balance a budget).	0	1	2	3
7. Having a conflict of loyalties or responsibilities (eg managerial vs clinical responsibilities).	0	1	2	3
8. Having limits imposed on clinical freedom.	0	1	2	3
9. Being responsible for other staff.	0	1	2	3
10. Being constantly evaluated by colleagues.	0	1	2	3
11. Encountering prejudice/discrimination from patients or other members of staff (either because female or a member of an ethnic minority).	0	1	2	3

CAREER DEVELOPMENT

1. Lack of job security.	0	1	2	3
2. Evaluations/appraisals of job performance.	0	1	2	3
3. Lack of opportunities to develop particular career interests.	0	1	2	3
4. Inadequate financial remuneration for the job.	0	1	2	3
5. Changing professional expectations in response to recent NHS changes (eg expected to do more clinical	0	1	2	3

work and attend conferences less).

6. Feeling regret about choosing your particular specialty or about going into medicine as a profession.	0	1	2	3

HOME/WORK CONFLICTS

1. Lack of personal/free time (work encroaching on personal life, interruption of home life by phone calls, having to divide time between family/friends and patients, social life disrupted by job demands, 24 hour responsibility for patients).	0	1	2	3

So far we have covered job-specific factors, relationships at work, role in the organisation/organisational structure, career development and home-work conflicts. Are there any other aspects of work within those categories or in an area which we have not already covered which you feel are stressful? Why are they relevant?

Describe the **three** most stressful aspects of the job:

1.

2.

3.

Sources of satisfaction

1. Helping patients, eg through curing cancer/controlling symptoms.	0	1	2	3
2. Relationships with patients, eg gratitude and inspiration received from patients, feeling important to patients.	0	1	2	3
3. Relationships with other staff members. Working as part of a multidisciplinary team, the quality and interest of co-workers.	0	1	2	3
4. Being respected and held in esteem by colleagues.	0	1	2	3
5. The intellectual stimulation of the job, particularly advancing research and teaching.	0	1	2	3
6. The level of autonomy in the job, freedom to choose methods of working.	0	1	2	3
7. The amount of variety in the job.	0	1	2	3
8. The amount of responsibility held.	0	1	2	3
9. Being able to bring about positive change in the organisation.	0	1	2	3
10. Opportunities for personal learning/developing clinical/management/research skills, eg through attending conferences and courses.	0	1	2	3
11. Opportunities to contribute to the development of one's profession through professional activities (eg supervising theses etc).	0	1	2	3

Are there any other aspects of the work which are a source of satisfaction to you? Why are these particularly relevant?

Describe the **three** most satisfying aspects of work for you:

1.

2.

3.

Appendix D - CONSULTANTS' JOB STRESS QUESTIONNAIRE

To what extent have the following factors contributed to the stress you have derived from your job **in the last few months?** Rate each factor by circling the relevant number on the 0 to 3 scale.	**Extent contributes to stress** Not at all	A little	Quite a bit	A lot
1. Being involved with the physical suffering of patients.	0	1	2	3
2. Encountering difficulties in relationships with junior medical staff.	0	1	2	3
3. Feeling you have insufficient input into the management of your unit or institution.	0	1	2	3
4. Disruption of your home life through spending long hours at work.	0	1	2	3
5. Having inadequate facilities (eg equipment, space) to do your job properly.	0	1	2	3
6. Having to deal with distressed, angry or blaming relatives.	0	1	2	3
7. Keeping up to date with current clinical and research practices.	0	1	2	3
8. Having to take on more managerial responsibilities.	0	1	2	3
9. Encountering difficulties in relationships with consultant colleagues.	0	1	2	3
10. Feeling under pressure to meet deadlines.	0	1	2	3
11. Being responsible for the quality of the work of other staff.	0	1	2	3
12. Being involved with the emotional distress of patients.	0	1	2	3
13. Encountering difficulties in relationships with administrative staff, eg secretaries.	0	1	2	3
14. Having too great an overall volume of work.	0	1	2	3
15. Feeling you are poorly paid for the job you do.	0	1	2	3
16. Encountering difficulties in relationships with managers.	0	1	2	3
17. Having conflicting demands on your time, eg patient care/management /research/College.	0	1	2	3
18. Having inadequate staff to do your job properly.	0	1	2	3
19. Dealing with the threat of being sued for malpractice.	0	1	2	3
20. Disruption of your home life as a result of taking paperwork home.	0	1	2	3
21. Feeling that your accumulated skills and expertise are not being put to their best use.	0	1	2	3
22. Disruption of your home life as a result of being on call.	0	1	2	3
23. Having a conflict of responsibilities (eg clinical vs managerial; clinical vs research).	0	1	2	3
24. Uncertainty over the future funding of your unit/institution.	0	1	2	3
25. Being responsible for the welfare of other staff.	0	1	2	3

26. Overall how stressful do you find your work?

Not at all stressful 0 1 2 3 4 Extremely stressful

Appendix E - CONSULTANTS' JOB SATISFACTION QUESTIONNAIRE

To what extent have the following factors contributed to the satisfaction you have derived from your job in the last few months? Rate each factor by circling the relevant number on the 0 to 3 scale.	Extent contributes to satisfaction: Not at all	A little	Quite a bit	A lot
1. Having a high level of responsibility.	0	1	2	3
2. Being perceived to do the job well by your colleagues.	0	1	2	3
3. Being able to bring about positive change in your unit/institution.	0	1	2	3
4. Having good relationships with patients.	0	1	2	3
5 . Feeling you have the staff necessary to do a good job.	0	1	2	3
6. Deriving intellectual stimulation from research.	0	1	2	3
7. Having a high level of autonomy.	0	1	2	3
8. Having opportunities for personal learning (developing clinical/research /management skills).	0	1	2	3
9. Having good relationships with other staff members.	0	1	2	3
10. Having variety in your job.	0	1	2	3
11. Feeling you have adequate financial resources to do a good job.	0	1	2	3
12. Being involved in activities which contribute to the development of your profession.	0	1	2	3
13. Feeling you have a high level of job security.	0	1	2	3
14. Deriving intellectual stimulation from teaching.	0	1	2	3
15. Feeling you have adequate facilities to do a good job.	0	1	2	3
16. Feeling your clinical experience is used to the full in the job you do.	0	1	2	3
17. Feeling you deal well with relatives.	0	1	2	3

18. Overall how satisfying do you find your work?

Not at all satisfying 0 1 2 3 4 Extremely satisfying

Appendix F - General Health Questionnaire-12

Please read this carefully:

We should like to know if you have had any medical complaints, and how your health has been in general, *over the past few weeks*. Please answer ALL the questions simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those you had in the past. It is important that you try to answer ALL the questions.

Thank you very much for your co-operation.

HAVE YOU RECENTLY:

1 -	**been able to concentrate on whatever you're doing?**	Better than usual	Same as usual	Less than usual	Much less than usual
2 -	**lost much sleep over worry?**	Not at all	No more than usual	Rather more than usual	Much more than usual
3 -	**felt that you are playing a useful part in things?**	More so than usual	Same as usual	Less useful than usual	Much less useful
4 -	**felt capable of making decisions about things?**	More so than usual	Same as usual	Less so than usual	Much less capable
5 -	**felt constantly under strain?**	Not at all	No more than usual	Rather more than usual	Much more than usual
6 -	**felt you couldn't overcome your difficulties?**	Not at all	No more than usual	Rather more than usual	Much more than usual
7 -	**been able to enjoy your normal day-to-day activities?**	More so than usual	Same as usual	Less so than usual	Much less than usual
8 -	**been able to face up to your problems?**	More so than usual	Same as usual	Less able than usual	Much less able
9 -	**been feeling unhappy and depressed?**	Not at all	No more than usual	Rather more than usual	Much more than usual
10 -	**been losing confidence in yourself?**	Not at all	No more than usual	Rather more than usual	Much more than usual
11 -	**been thinking of yourself as a worthless person?**	Not at all	No more than usual	Rather more than usual	Much more than usual
12 -	**been feeling reasonably happy, all things considered?**	More so than usual	About same as usual	Less so than usual	Much less than usual

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Appendix G - Maslach Burnout Inventory

Christina Maslach • Susan E. Jackson

Human Services Survey

The purpose of this survey is to discover how various persons in the human services or helping professions view their jobs and the people with whom they work closely. Because persons in a wide variety of occupations will answer this survey, it uses the term *recipients* to refer to the people for whom you provide your service, care, treatment, or instruction. When answering this survey please think of these people as recipients of the service you provide, even though you may use another term in your work.

On the following page there are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way *about your job*. If you have *never* had this feeling, write a "0" (zero) before the statement. If you have had this feeling, indicate *how often* you feel it by writing the number (from 1 to 6) that best describes how frequently you feel that way. An example is shown below.

Example:

HOW OFTEN:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

HOW OFTEN 0 - 6	Statement:
_____	I feel depressed at work.

If you *never* feel depressed at work, you would write the number "0" (zero) under the heading "HOW OFTEN." If you *rarely* feel depressed at work (a few times a year or less), you would write the number "1." If your feelings of depression are fairly frequent (a few times a week, but not daily) you would write a "5."

Consulting Psychologists Press, Inc.
3803 E. Bayshore Road • Palo Alto, CA 94303

Human Services Survey

HOW OFTEN:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

HOW OFTEN 0 - 6	Statements:
1. _____	I feel emotionally drained from my work.
2. _____	I feel used up at the end of the workday.
3. _____	I feel fatigued when I get up in the morning and have to face another day on the job.
4. _____	I can easily understand how my recipients feel about things.
5. _____	I feel I treat some recipients as if they were impersonal objects.
6. _____	Working with people all day is really a strain for me.
7. _____	I deal very effectively with the problems of my recipients.
8. _____	I feel burned out from my work.
9. _____	I feel I'm positively influencing other people's lives through my work.
10. _____	I've become more callous toward people since I took this job.
11. _____	I worry that this job is hardening me emotionally.
12. _____	I feel very energetic.
13. _____	I feel frustrated by my job.
14. _____	I feel I'm working too hard on my job.
15. _____	I don't really care what happens to some recipients.
16. _____	Working with people directly puts too much stress on me.
17. _____	I can easily create a relaxed atmosphere with my recipients.
18. _____	I feel exhilarated after working closely with my recipients.
19. _____	I have accomplished many worthwhile things in this job.
20. _____	I feel like I'm at the end of my rope.
21. _____	In my work, I deal with emotional problems very calmly.
22. _____	I feel recipients blame me for some of their problems.

(Administrative use only)	cat.	cat.	cat.
EE: _____	_____	DP: _____ _____	PA: _____ _____

Appendix H - Background information questionnaire

Please tick the relevant box.

1. Type of institution in which you carry out most of your work.

- ☐ teaching hospital
- ☐ district general hospital
- ☐ other (please specify)_____

2. Type of post you hold.

- ☐ NHS hospital-based consultant
- ☐ university professor/reader/senior lecturer
- ☐ other (please specify) _____

3. Do you work

- ☐ full-time
- ☐ part time?

  If part-time please specify number of sessions per week _____

4. Do you have full managerial responsibility for your department/organisation?

- ☐ yes
- ☐ no

5. How many sessions of private practice do you do per week?

- ☐ none
- ☐ 1 - 2
- ☐ more than 2

6. Number of years you have been working as a consultant.

- ☐ 5 or less
- ☐ 6 - 10
- ☐ 11 - 15
- ☐ 16 or more

7. In your work as a physician generally, do you feel you have had sufficient training in:

Yes	No	
☐	☐	treatment of disease
☐	☐	symptom control
☐	☐	communication skills
☐	☐	management skills?

8. Age (in years):

☐	35 and under	☐	36 - 40
☐	41 - 45	☐	46 - 50
☐	51 - 55	☐	over 55

9. Sex : ☐ male

☐ female

10. Marital status:

☐ single

☐ married/cohabiting

☐ separated/divorced/widowed

Appendix J - Number of consultants scoring 0-3 on each source of job stress from the Consultants' Job Stress Questionnaire
N ranges from 877 to 882 for each item. Missing data are also shown.

Source of stress	0	1	2	3	Missing
Having too great an overall volume of work	51	167	282	379	3
Having conflicting demands on your time	47	214	308	312	1
Disruption of your home life through spending long hours at work	101	286	292	201	2
Feeling under pressure to meet deadlines	108	276	327	170	1
Having inadequate staff to do your job properly	116	280	278	207	1
Having inadequate facilities (eg equipment/space) to do your job properly	154	295	265	166	2
Having to take on more managerial responsibilities	183	289	266	143	1
Having a conflict of responsibilities (eg clinical vs managerial; clinical vs research)	170	302	262	143	5
Feeling you have insufficient input into the management of your unit/institution	218	263	248	151	2
Keeping up to date with current clincal and research practices	130	377	292	83	0
Disruption of your home life as a result of taking paperwork home with you	204	304	224	149	1
Uncertainty over the future funding of your unit/institution	225	320	215	119	3
Being responsible for the quality of the work of other staff	166	400	238	78	0
Having to deal with distressed, angry or blaming relatives	196	377	217	91	1
Feeling that your accumulated skills and expertise are not being put to their best use	307	314	182	79	0
Encountering difficulties in relationships with managers	278	349	179	74	2
Disruption of your home life as a result of being on-call	231	420	160	69	2
Being involved with the emotional distress of patients	186	479	173	43	1
Encountering difficulties in relationships with consultant colleagues	334	330	144	74	0
Being involved with the physical suffering of patients	172	496	187	24	3
Dealing with the threat of being sued for malpractice	370	342	121	49	0
Feeling you are poorly paid for the job you do	518	226	88	48	2
Being responsible for the welfare of other staff	353	403	100	21	5
Encountering difficulties in relationships with junior medical staff	388	372	104	15	3
Encountering difficulties in relationships with administrative staff, eg secretaries	437	340	87	18	0

Appendix K - Correlation matrix and significance levels for sources of stress.

Sources of job stress are labelled ST1-ST25 corresponding to items 1-25 in Consultants' Job Stress Questionnaire (Appendix D) .

	ST1	ST2	ST3	ST4	ST5	ST6	ST7
ST1	1.00000						
ST2	.10534	1.00000					
ST3	.11286	.16499	1.00000				
ST4	.13547	.17541	.12397	1.00000			
ST5	.09673	.11681	.34078	.18847	1.00000		
ST6	.28122	.15131	.06245	.18699	.13659	1.00000	
ST7	.14922	.17730	.08129	.28688	.12765	.17151	1.00000
ST8	.07063	.14406	.06564	.29104	.14405	.18458	.32277
ST9	.11995	.23460	.19145	.08969	.10340	.08223	.24115
ST10	.12344	.12288	.13266	.38704	.19117	.13156	.32259
ST11	.22924	.23951	.10061	.33062	.14450	.25939	.33368
ST12	.60422	.08805	.04997	.18315	.07609	.41361	.17641
ST13	.15631	.26211	.15844	.15585	.19844	.22855	.19969
ST14	.07345	.15445	.08108	.47729	.20393	.16199	.33202
ST15	.01657	.00520	.19608	.16878	.15845	.01992	.19068
ST16	.07745	.12945	.45902	.11378	.27816	.06747	.16536
ST17	.15426	.10513	.10548	.42409	.20276	.21034	.35960
ST18	.07721	.19911	.26817	.30153	.44058	.11311	.22270
ST19	.24707	.05604	.05448	.13262	.14300	.48363	.18173
ST20	.09653	.10304	.06008	.65376	.17773	.17993	.33274
ST21	.07173	.14828	.34936	.18329	.36378	.05943	.14305
ST22	.09267	.14302	.09323	.36278	.18650	.11382	.16594
ST23	.08217	.15379	.14841	.35230	.17335	.16969	.30068
ST24	.05083	.09125	.31609	.12393	.24073	.03945	.10720
ST25	.18756	.18114	.09827	.18766	.14217	.16260	.30340

	ST8	ST9	ST10	ST11	ST12	ST13	ST14
ST8	1.00000						
ST9	.22337	1.00000					
ST10	.36953	.23291	1.00000				
ST11	.37062	.23277	.40006	1.00000			
ST12	.15560	.10658	.16621	.27933	1.00000		
ST13	.21452	.27321	.15783	.26149	.18128	1.00000	
ST14	.35211	.12129	.44151	.31978	.09719	.18322	1.00000
ST15	.07827	.15910	.09145	.10063	.00900	.16089	.18375
ST16	.19662	.22992	.19660	.15404	.04922	.27633	.13527
ST17	.44238	.13151	.46363	.35983	.19795	.17077	.52525
ST18	.24323	.15209	.25879	.31673	.08581	.24502	.43362
ST19	.10406	.04917	.12527	.26409	.26249	.19038	.17491
ST20	.30509	.07752	.40118	.30246	.16174	.18711	.47747
ST21	.15885	.22437	.12723	.18990	.01814	.23978	.21328
ST22	.13386	.13530	.18492	.20499	.12277	.08977	.29444
ST23	.47501	.21215	.45518	.37915	.14807	.23173	.41198
ST24	.24231	.15281	.19115	.17512	.02784	.20059	.08050
ST25	.36871	.22620	.27523	.45003	.20840	.24924	.20936

	ST15	ST16	ST17	ST18	ST19	ST20	ST21
ST15	1.00000						
ST16	.30281	1.00000					
ST17	.11061	.17783	1.00000				
ST18	.20674	.27135	.39030	1.00000			
ST19	.12891	.12127	.15896	.19329	1.00000		
ST20	.14168	.12589	.49962	.31054	.17734	1.00000	
ST21	.31021	.32635	.18745	.33223	.12848	.15778	1.00000
ST22	.25599	.19444	.13363	.18083	.17180	.29305	.20760
ST23	.10316	.27127	.65831	.36774	.13330	.45002	.23251
ST24	.14407	.32755	.16294	.26241	.09119	.13591	.31163
ST25	.11376	.22383	.29109	.21388	.17516	.22971	.23250

	ST22	ST23	ST24	ST25
ST22	1.00000			
ST23	.17502	1.00000		
ST24	.05563	.23605	1.00000	
ST25	.15588	.38557	.33859	1.00000

1-tailed Significance of Correlation Matrix:

' . ' is printed for diagonal elements.

	ST1	ST2	ST3	ST4	ST5
ST1	.				
ST2	.00104	.			
ST3	.00048	.00000	.		
ST4	.00004	.00000	.00014	.	
ST5	.00236	.00032	.00000	.00000	.
ST6	.00000	.00000	.03423	.00000	.00003
ST7	.00001	.00000	.00882	.00000	.00009
ST8	.01965	.00001	.02773	.00000	.00001
ST9	.00023	.00000	.00000	.00440	.00126
ST10	.00015	.00016	.00005	.00000	.00000
ST11	.00000	.00000	.00164	.00000	.00001
ST12	.00000	.00507	.07252	.00000	.01318
ST13	.00000	.00000	.00000	.00000	.00000
ST14	.01603	.00000	.00897	.00000	.00000
ST15	.31459	.43981	.00000	.00000	.00000
ST16	.01189	.00008	.00000	.00044	.00000
ST17	.00000	.00106	.00102	.00000	.00000
ST18	.01210	.00000	.00000	.00000	.00000
ST19	.00000	.05107	.05603	.00005	.00001
ST20	.00240	.00130	.03982	.00000	.00000
ST21	.01816	.00001	.00000	.00000	.00000
ST22	.00340	.00001	.00323	.00000	.00000
ST23	.00822	.00000	.00001	.00000	.00000
ST24	.06910	.00385	.00000	.00014	.00000
ST25	.00000	.00000	.00204	.00000	.00002

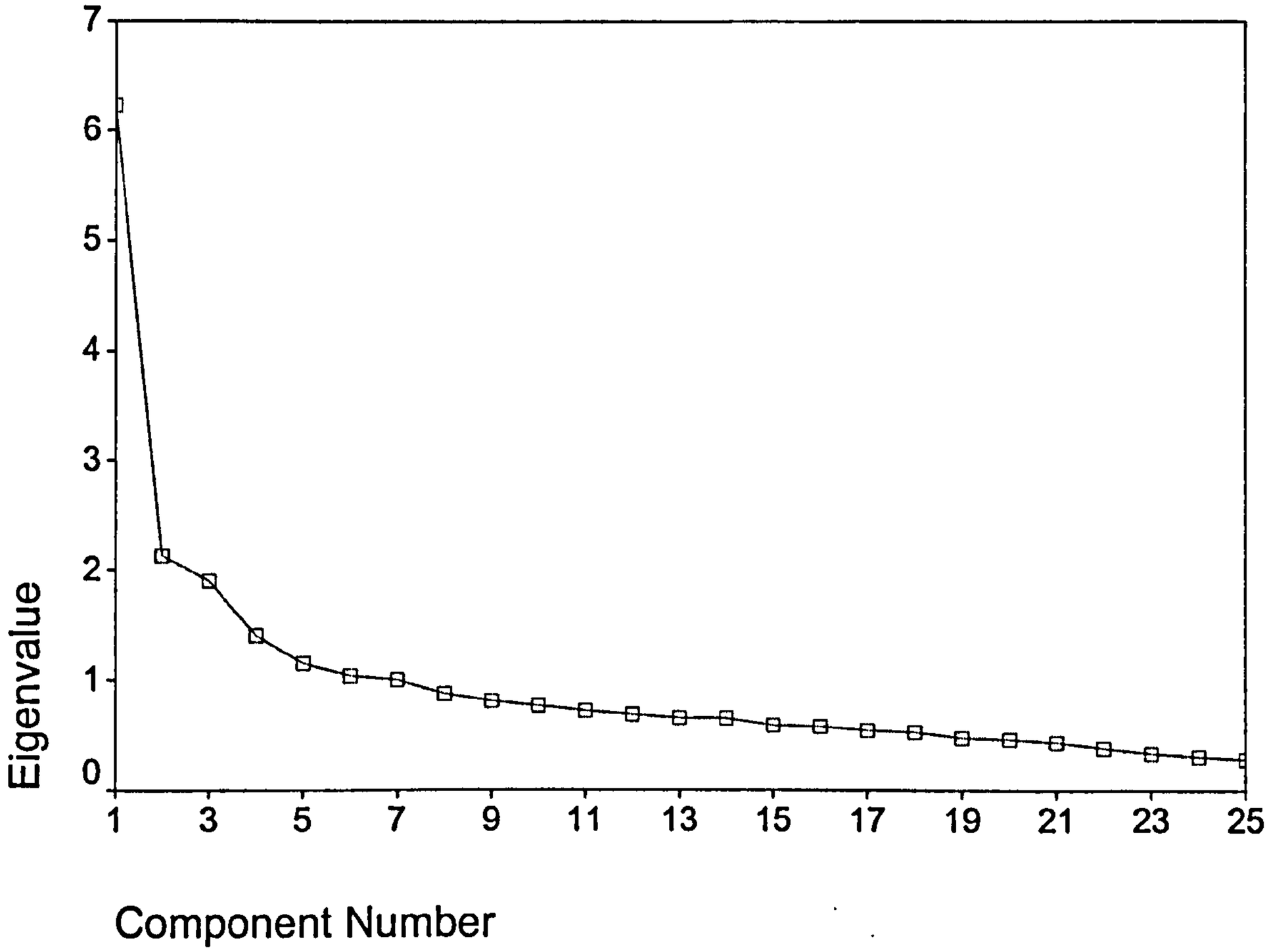
	ST6	ST7	ST8	ST9	ST10
ST6	.				
ST7	.00000	.			
ST8	.00000	.00000	.		
ST9	.00818	.00000	.00000	.	
ST10	.00006	.00000	.00000	.00000	.
ST11	.00000	.00000	.00000	.00000	.00000
ST12	.00000	.00000	.00000	.00092	.00000
ST13	.00000	.00000	.00000	.00000	.00000
ST14	.00000	.00000	.00000	.00019	.00000
ST15	.28073	.00000	.01116	.00000	.00378
ST16	.02449	.00000	.00000	.00000	.00000
ST17	.00000	.00000	.00000	.00006	.00000
ST18	.00047	.00000	.00000	.00000	.00000
ST19	.00000	.00000	.00118	.07580	.00012
ST20	.00000	.00000	.00000	.01183	.00000
ST21	.04149	.00001	.00000	.00000	.00010
ST22	.00044	.00000	.00004	.00004	.00000
ST23	.00000	.00000	.00000	.00000	.00000
ST24	.12503	.00086	.00000	.00000	.00000
ST25	.00000	.00000	.00000	.00000	.00000

	ST11	ST12	ST13	ST14	ST15
ST11	.				
ST12	.00000	.			
ST13	.00000	.00000	.		
ST14	.00000	.00226	.00000	.	
ST15	.00164	.39653	.00000	.00000	.
ST16	.00000	.07559	.00000	.00004	.00000
ST17	.00000	.00000	.00000	.00000	.00061
ST18	.00000	.00611	.00000	.00000	.00000
ST19	.00000	.00000	.00000	.00000	.00008
ST20	.00000	.00000	.00000	.00000	.00002
ST21	.00000	.29846	.00000	.00000	.00000
ST22	.00000	.00016	.00437	.00000	.00000
ST23	.00000	.00001	.00000	.00000	.00129
ST24	.00000	.20849	.00000	.00938	.00001
ST25	.00000	.00000	.00000	.00000	.00044

	ST16	ST17	ST18	ST19	ST20
ST16	.				
ST17	.00000	.			
ST18	.00000	.00000	.		
ST19	.00019	.00000	.00000	.	
ST20	.00012	.00000	.00000	.00000	.
ST21	.00000	.00000	.00000	.00009	.00000
ST22	.00000	.00005	.00000	.00000	.00000
ST23	.00000	.00000	.00000	.00005	.00000
ST24	.00000	.00000	.00000	.00387	.00003
ST25	.00000	.00000	.00000	.00000	.00000

	ST21	ST22	ST23	ST24	ST25
ST21	.				
ST22	.00000	.			
ST23	.00000	.00000	.		
ST24	.00000	.05233	.00000	.	
ST25	.00000	.00000	.00000	.00000	.

Appendix L - Scree plot of stress factors



Appendix M - Loadings of stress items on four stress factors; oblimin rotation

N=852

Questionnaire items	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1. Feeling overloaded and its effect on home life (24.9% variance)				
	.78	.07	.06	.10
Item 4 Disruption of your home life through spending long hours at work	**.53**	.00	.03	.37
Item 10 Feeling under pressure to meet deadlines	**.75**	.08	.04	.03
Item 14 Having too great an overall volume of work	**.67**	.01	.04	.19
Item 17 Having conflicting demands on your time..	**.82**	.02	.04	.09
Item 20 Disruption of your home life as a result of taking paperwork home				
Factor 2. Feeling poorly managed and resourced (8.5% variance)				
Item 3 Feeling you have insufficient input into the management of your unit/institution	.12	**.74**	.04	.03
Item 5 Having inadequate facilities (eg equipment, space) to do your job properly	.15	**.60**	.10	.12
Item 15 Feeling you are poorly paid for the job you do	.10	**.55**	.05	.06
Item 16 Encountering difficulties in relationships with managers	.08	**.68**	.02	.22
Item 21 Feeling your accumulated skills and experience are not being put to their best use	.05	**.68**	.02	.07
Factor 3. Dealing with patients' suffering (7.6% variance)				
Item 1 Being involved with the physical suffering of patients	.14	.00	**.74**	.13
Item 6 Having to deal with distressed, angry or blaming relatives	.10	.00	**.72**	.07
Item 12 Being involved with the emotional distress of patients	.05	.11	**.78**	.14
Item 19 Dealing with the threat of being sued for malpractice	.09	.13	**.64**	.14
Factor 4. Having managerial responsibilities (5.6% variance)				
Item 8 Having to take on more managerial responsibilities	.37	.06	.04	**.55**
Item 9 Encountering difficulties with consultant colleagues	.15	.22	.02	**.63**
Item 11 Being responsible for the quality of the work of other staff	.27	.04	.24	**.52**
Item 25 Being responsible for the welfare of other staff	.07	.04	.13	**.65**

Appendix N - Correlations between the four stress factors; oblimin rotation

N=852

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	-			
Factor 2	.21	-		
Factor 3	.23	.12	-	
Factor 4	-.25	-.19	-.17	-

Appendix P - Number of consultants scoring 0-3 on each source of job satisfaction from the Consultants' Job Satisfaction Questionnaire

N ranges from 876 to 882 for each item. Missing data are also shown.

Source of satisfaction	0	1	2	3	Missing
Having good relationships with patients	4	40	273	560	5
Having good relationships with other staff members	10	128	435	306	3
Being perceived to do the job well by your colleagues	15	116	370	375	6
Having variety in your job	23	120	338	398	3
Having a high level of responsibility	33	142	407	295	5
Feeling you deal well with relatives	52	246	401	179	4
Having a high level of autonomy	96	250	303	229	4
Being able to being about positive change in your unit/institution	99	248	325	204	6
Feeling your clinical experience is used to the full in the job you do	83	271	357	165	6
Deriving intellectual stimulation from teaching	71	331	341	135	4
Feeling you have a high level of job security	160	265	294	157	6
Being involved in activities which contribute to the development of the profession	119	327	275	155	6
Feeling you have the staff necessary to do a good job	171	304	276	126	5
Deriving intellectual stimulation from research	222	305	193	158	4
Having opportunities for personal learning (developing clinical/.. skills	201	322	257	96	6
Feeling you have adequate facilities to do a good job	225	331	256	64	6
Feeling you have adequate financial resources to do a good job	351	286	173	67	5

Appendix Q - Correlation matrix and significance levels for sources of satisfaction.

Sources of job satisfaction are labelled SA1-SA17 corresponding to items 1-17 in Consultants' Job Satisfaction Questionnaire (Appendix E).

	SA1	SA2	SA3	SA4	SA5	SA6	SA7
SA1	1.00000						
SA2	.41444	1.00000					
SA3	.36669	.31857	1.00000				
SA4	.26148	.28136	.22124	1.00000			
SA5	.24330	.17474	.28367	.20747	1.00000		
SA6	.18017	.15607	.21064	.09858	.26578	1.00000	
SA7	.38645	.26360	.27022	.17207	.31554	.32077	1.00000
SA8	.27370	.19358	.30336	.11433	.34374	.40569	.41581
SA9	.24247	.31276	.22892	.36221	.28825	.06091	.21810
SA10	.31074	.18603	.21646	.21005	.23095	.14699	.34528
SA11	.20208	.13126	.30868	.11470	.47961	.26643	.35291
SA12	.28421	.24842	.32176	.16717	.24675	.40662	.28676
SA13	.20235	.17929	.18182	.11669	.27161	.01978	.27855
SA14	.21880	.18590	.15277	.22122	.14665	.33411	.13913
SA15	.20967	.11902	.29265	.13150	.53440	.13488	.31539
SA16	.24782	.20204	.27615	.21851	.27857	.07514	.24359
SA17	.25013	.21029	.12955	.46172	.15675	.13877	.18061

	SA8	SA9	SA10	SA11	SA12	SA13	SA14
SA8	1.00000						
SA9	.23092	1.00000					
SA10	.28984	.38538	1.00000				
SA11	.41584	.22246	.28051	1.00000			
SA12	.36946	.23182	.21806	.31223	1.00000		
SA13	.17483	.29180	.24317	.27876	.20842	1.00000	
SA14	.27411	.24696	.20176	.15086	.31984	.16756	1.00000
SA15	.34810	.25860	.24284	.65548	.20336	.34262	.21322
SA16	.23163	.27468	.23427	.38092	.18574	.28851	.26004
SA17	.10946	.28118	.18901	.20175	.16805	.15443	.25162

	SA15	SA16	SA17
SA15	1.00000		
SA16	.46900	1.00000	
SA17	.19299	.30643	1.00000

Determinant of Correlation Matrix = .0094481

1-tailed Significance of Correlation Matrix:

' . ' is printed for diagonal elements.

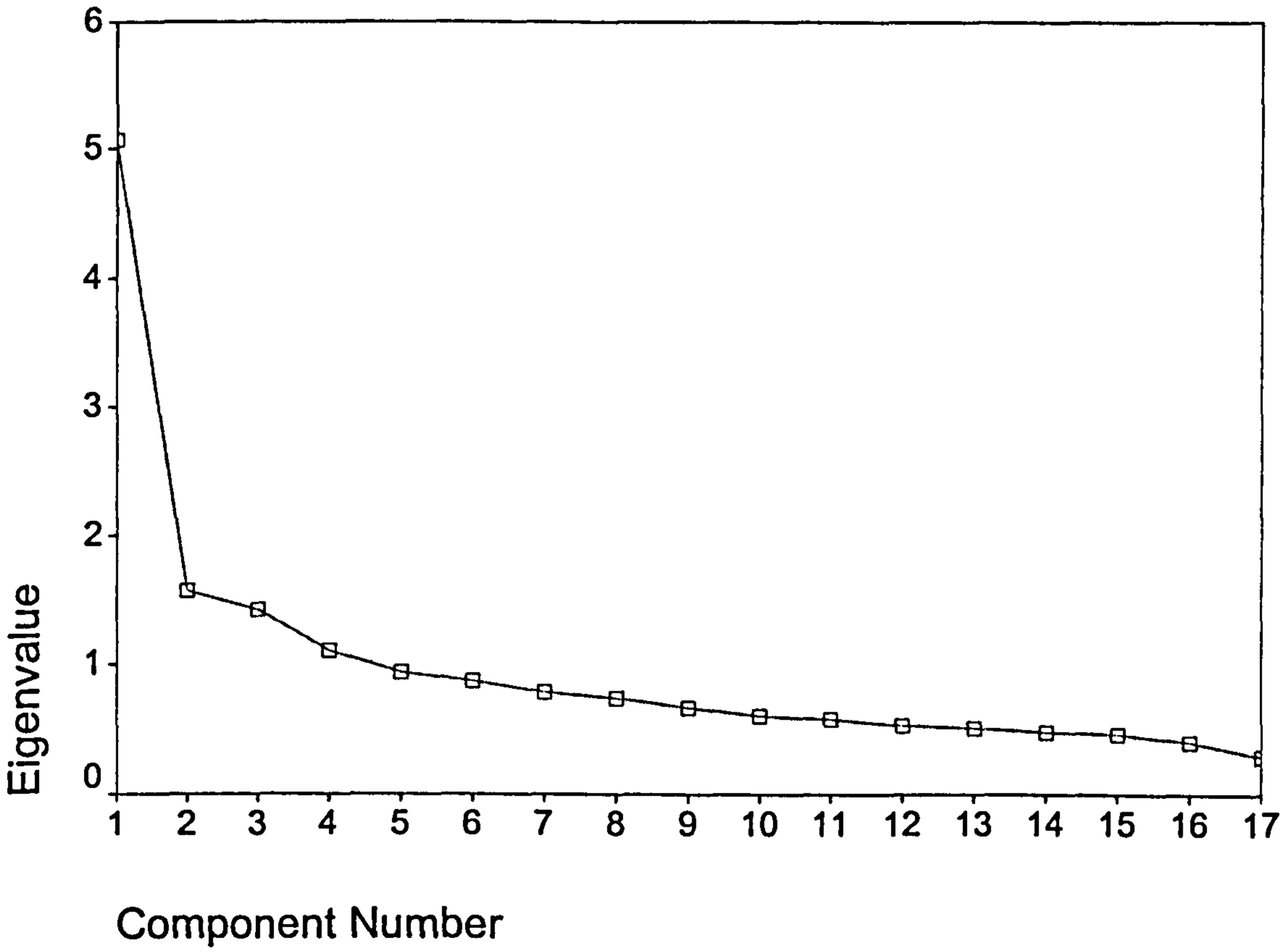
	SA1	SA2	SA3	SA4	SA5
SA1	.				
SA2	.00000	.			
SA3	.00000	.00000	.		
SA4	.00000	.00000	.00000	.	
SA5	.00000	.00000	.00000	.00000	.
SA6	.00000	.00000	.00000	.00200	.00000
SA7	.00000	.00000	.00000	.00000	.00000
SA8	.00000	.00000	.00000	.00042	.00000
SA9	.00000	.00000	.00000	.00000	.00000
SA10	.00000	.00000	.00000	.00000	.00000
SA11	.00000	.00006	.00000	.00040	.00000
SA12	.00000	.00000	.00000	.00000	.00000
SA13	.00000	.00000	.00000	.00032	.00000
SA14	.00000	.00000	.00000	.00000	.00001
SA15	.00000	.00025	.00000	.00006	.00000
SA16	.00000	.00000	.00000	.00000	.00000
SA17	.00000	.00000	.00008	.00000	.00000

	SA6	SA7	SA8	SA9	SA10
SA6	.				
SA7	.00000	.			
SA8	.00000	.00000	.		
SA9	.03788	.00000	.00000	.	
SA10	.00001	.00000	.00000	.00000	.
SA11	.00000	.00000	.00000	.00000	.00000
SA12	.00000	.00000	.00000	.00000	.00000
SA13	.28224	.00000	.00000	.00000	.00000
SA14	.00000	.00002	.00000	.00000	.00000
SA15	.00004	.00000	.00000	.00000	.00000
SA16	.01420	.00000	.00000	.00000	.00000
SA17	.00002	.00000	.00069	.00000	.00000

	SA11	SA12	SA13	SA14	SA15
SA11	.				
SA12	.00000	.			
SA13	.00000	.00000	.		
SA14	.00000	.00000	.00000	.	
SA15	.00000	.00000	.00000	.00000	.
SA16	.00000	.00000	.00000	.00000	.00000
SA17	.00000	.00000	.00000	.00000	.00000

	SA16	SA17
SA16	.	
SA17	.00000	.

Appendix R -Scree plot of satisfaction factors



Appendix S - Loadings of job satisfaction items on three satisfaction factors, oblimin rotation

N=851

Questionnaire items	Factor 1	Factor 2	Factor3
Factor 1. Feeling well managed and resourced			
Item 5 : Feeling you have the staff necessary to do a good job	**.63**	.01	.23
Item 11: Feeling you have adequate financial resources to do a good job	**.77**	.15	.25
Item 13: Feeling you have a high level of job security	**.54**	.17	.12
Item 15: Feeling you have adequate facilities to do a good job	**.89**	.10	.03
Item 16: Feeling your clinical experience is used to the full in the job you do	**.60**	.25	.11
Factor 2. Deriving interpersonal satisfaction			
Item 1 : Having a high level of responsibility	.01	**.52**	.34
Item 2 : Being perceived to do the job well by your colleagues	.14	**.63**	.27
Item 4 : Having good relationships with patients	.03	**.76**	.06
Item 9 : Having good relationships with other staff members	.32	**.55**	.05
Item 17: Feeling you deal well with relatives	.11	**.65**	.11
Factor 3. Having opportunities for personal and professional development			
Item 3 : Being able to bring about positive change in your unit or institution	.16	.28	**.41**
Item 6 : Deriving intellectual stimulation from research	.06	.06	**.80**
Item 8 : Having opportunities for personal learning (developing clinical/.. skills	.29	.06	**.62**
Item 12: Being involved in activities which contribute to the development of the profession	.04	.16	**.66**

Appendix T - Correlations between the four stress factors; Oblimin rotation

N=852

	Factor 1	Factor 2	Factor 3
Factor 1	-		
Factor 2	.32	-	
Factor 3	.26	.20	-

Appendix U - Publications

Clinical Radiology (2000) 55, 182–185
doi:10.1053/crad.1999.0379, available online at http://www.idealibrary.com on IDEAL®

Job Stress and Satisfaction Among Clinical Radiologists

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AIMS: Consultant radiologists appear to be at greater risk of burnout than consultants working in other specialties. The aim of this study was to examine sources of stress and satisfaction at work for radiologists and hospital consultants in other specialties in order to try to understand this difference.
MATERIALS AND METHODS: A postal questionnaire survey of psychiatric morbidity (12-item General Health Questionnaire), burnout (Maslach Burnout Inventory) and sources of job stress and satisfaction (study-specific questionnaires) was carried out among a random sample of 882 hospital consultants working in radiology and three other specialties (surgery, gastroenterology and oncology).
RESULTS: The most stressful aspect of work for radiologists was work overload. Inadequacies in current staffing and facilities and concerns about funding were also major sources of stress, as were impositions made on radiologists by other clinicians. The most important sources of satisfaction for radiologists were their relationships with patients and being perceived to do their job well by colleages. Importantly, radiologists reported less satisfaction than the other specialists from many of the aspects of work measured. A greater proportion of radiologists than other specialists felt insufficiently trained in communication skills [80% ($n=168$) vs 47% ($n=310$); $P<0.001$] and management skills [84% ($n=179$) vs 76% ($n=506$); $P<0.05$].
CONCLUSION: These data highlight aspects of radiologists' work which need to be tackled in order to reduce their stress and increase their satisfaction, and thereby their risk of burnout. Graham, J. *et al.* (2000). *Clinical Radiology* 55, 182–185.

Key words: professional burnout, radiologist, psychological stress, job satisfaction, workload.

There is increasing concern about the poor mental health of doctors. Whilst much of the evidence has related to junior doctors, fuelled by concerns about the adverse effect of their long hours, recent work has also focused on senior doctors, amidst concerns about the rise in the numbers of consultants taking early retirement [1]. The mental health of consultants in a range of medical specialities in the U.K. was examined in a recent national survey [2]. The survey compared radiologists, chosen as an example of doctors providing a clinical support service, with three other specialist groups (surgeons, gastroenterologists and oncologists). Twenty-nine per cent of radiologists reported psychiatric morbidity, measured by the 12-item version of the General Health Questionnaire [3], which was similar to the 26% prevalence found among colleagues in the three other specialties.

In addition to the assessment of psychiatric morbidity, the survey assessed 'burnout' and factors contributing to job stress and satisfaction. Burnout is a syndrome of specifically work-related distress consisting of three components: feeling emotionally over-extended by work (emotional exhaustion), treating patients in an unfeeling way (depersonalization) and feeling reduced levels of competence and achievement at work (low personal accomplishment). Radiologists reported similar levels compared with other consultants of two of the three components of burnout, measured by the Maslach Burnout Inventory [4]; emotional exhaustion (33 vs 32%) and depersonalization (21 vs 25%) [2]. However, a higher proportion of radiologists than consultants in other specialties (49 vs 36%) reported feeling reduced levels of competence and achievement at work (low personal accomplishment).

The aim of the current study was to examine in more detail the sources of job stress and satisfaction amongst radiologists and to compare these where relevant with consultants in other specialties, in order to try to understand the findings relating to burnout.

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Guarantor of study: A.J. Ramirez.

0009-9260/00/030182+04 $35.00/0

MATERIALS AND METHODS

Full details of the methods used have been published elsewhere [2]. In brief, postal questionnaires were sent to 260 consultant clinical radiologists, representing a one in five random sample of all consultants working in the U.K. The names and addresses of radiologists were supplied by the Royal

College of Radiologists and a letter of support for the study from the Royal College was attached to each questionnaire package. A similar package of questionnaires was also sent to 873 consultants from three other specialties: 299 members of the British Society of Gastroenterology (a two in three random sample), all 252 surgeon members of the British Association of Surgical Oncology and all 322 clinical and medical oncologists, ascertained through the Royal College of Radiologists and the Royal College of Physicians, respectively. Two hundred and fourteen clinical radiologists (82%) returned questionnaires, along with 668 out of 873 consultants from the other specialities (77%).

Stressful and satisfying aspects of the job were measured using questionnaires designed specifically for the study, based on a review of the literature and interviews with a number of clinicians working in each specialty. The questionnaires contained 25 core sources of stress and 17 core sources of satisfaction relevant to all four specialist groups. The stress questionnaire also contained variable numbers of items relevant solely to each speciality, of which seven items were relevant solely to radiologists (those relevant only to other specialists are not reported here). Information was also collected on clinicians' perception of the adequacy of their training.

Chi-squared tests with Yates' correction were used to assess differences between radiologists' and other specialists' sources of job stress and satisfaction and perceived adequacy of training.

RESULTS

Sources of Stress

Aspects of work relating to work overload were rated by both radiologists and consultants in other specialties as contributing the most to their overall job stress (Table 1), including 'having too great an overall volume of work', 'having conflicting demands on one's time' and 'feeling under pressure to meet deadlines'. 'Having inadequate staff to do your job properly' and 'having inadequate facilities to perform one's job properly' were also rated highly by all consultants. More than half of radiologists reported that 'dealing with clinicians' requests for inappropriate examinations' and 'dealing with the continuous expectation of clinicians to do their work immediately' contributed quite a bit or a lot to their job stress, and a greater proportion of radiologists than other consultants reported stress from their relationships with consultant colleagues generally. A

Table 1 – Percentage of radiologists and other consultants describing each source of stress as contributing 'quite a bit' or 'a lot' to overall job stress, preamble: 'To what extent have the following contributed to the stress you have experienced in your job in the past few months?'

Source of stress	Radiologists, $n=214$ (%)	Other consultants, $n=668$ (%)	χ^2 with Yates' correction	P-value
Having too great an overall volume of work	75	75	0.00	0.99
Having conflicting demands on your time, e.g. patient care/management/research	58	75	18.65	<0.0001
Feeling under pressure to meet deadlines	57	56	0.02	0.90
Having inadequate staff to do your job properly	56	55	0.07	0.79
Having inadequate facilities (e.g. equipment, space) to do your job properly	55	47	3.44	0.06
Dealing with clinicians' requests for inappropriate examinations†	53	–	–	–
Dealing with the continuous expectation of clinicians that you do their work immediately	52	–	–	–
Disruption of your home life through spending long hours at work	47	59	9.28	<0.01
Feeling you have insufficient input into the management of your unit or institution	47	45	0.17	0.68
Uncertainty over the future funding of your unit/institution	45	36	5.65	<0.05
Keeping up to date with current clinical and research practices	44	42	0.16	0.69
Having to take on more managerial responsibilities	43	48	1.16	0.28
Feeling that your accumulated skills and experience are not being put to their best use	39	27	10.80	<0.001
Having a conflict of responsibilities	38	49	6.81	<0.01
Disruption of your home life as a result of taking paperwork home with you	32	46	11.26	<0.001
Being responsible for the quality of the work of other staff	32	34	0.44	0.51
Disruption of your home life as a result of being on call	32	24	5.26	<0.05
Being concerned about the effect of diagnostic errors on patients	32	–	–	–
Encountering difficulties in relationships with consultant colleagues	30	23	3.73	<0.05
Encountering difficulties in relationships with managers	28	29	0.03	0.87
Feeling you are poorly paid for the job you do	22	13	8.57	<0.001
Dealing with complaints from patients and GPs	16	–	–	–
Being involved in audit and in particular errors and complications meetings	16	–	–	–
Running clinical/radiological meetings	16	–	–	–
Being responsible for the welfare of other staff	14	14	0.03	0.86
Encountering difficulties in relationships with junior medical staff	14	13	0.02	0.89
Encountering difficulties in relationships with administrative staff	14	11	1.48	0.22
Being involved with the physical suffering of patients	13	27	17.54	<0.0001
Being involved with the emotional distress of patients	12	28	22.49	<0.0001
Having to deal with distressed, angry or blaming relatives	10	43	74.02	<0.0001
Dealing with the threat of being sued for malpractice	9	23	18.75	<0.0001
Encountering difficulties in relationships with radiographers	7	–	–	–

† Questionnaire items in italics were relevant only to the work of radiologists and were not rated by consultants from the other specialties.

Table 2 – Percentage of radiologists and other consultants describing each source of satisfaction as contributing 'quite a bit' or 'a lot' to overall job satisfaction, preamble: 'To what extent have the following contributed to the satisfaction you have experienced in your job in the past few months?'

Source of satisfaction	Radiologists, $n=214$ (%)	Other consultants, $n=668$ (%)	χ^2 with Yates' correction	P-value
Having good relationships with patients	85	98	47.17	<0.0001
Being perceived to do the job well by your colleagues	85	85	0.01	0.92
Having variety in your job	83	84	0.05	0.82
Having good relationships with other staff members	80	85	2.59	0.11
Having a high level of responsibility	74	81	4.63	<0.05
Being able to being about positive change in your unit/institution	57	62	1.26	0.26
Feeling your clinical experience is used to the full in the job you do	53	61	3.87	<0.05
Deriving intellectual stimulation from teaching	50	55	2.07	0.15
Having a high level of autonomy	50	64	13.14	<0.001
Feeling you have a high level of job security	43	54	6.36	<0.01
Feeling you deal well with relatives	42	73	69.66	<0.001
Having opportunities for personal learning (developing clinical and other skills)	40	40	0.00	0.97
Being involved in activities which contribute to the development of the profession	38	52	13.01	<0.001
Feeling you have adequate facilities to do a good job	31	38	2.79	0.09
Feeling you have the staff necessary to do a good job	28	48	6.49	<0.01
Deriving intellectual stimulation from research	27	44	19.85	<0.0001
Feeling you have adequate financial resources to do a good job	20	30	10.71	<0.001

greater proportion of radiologists than consultants in other specialties reported stress from 'uncertainty over future funding of your unit or institution', 'feeling that your accumulated skills and experience are not being used to the full', and 'feeling poorly paid for the job you do'. A smaller proportion of radiologists than other consultants reported stress from 'having conflicting demands on your time', 'having a conflict of responsibilities', 'disruption of your home life through working long hours' and 'disruption of your home life as a result of taking paperwork home', but more radiologists than other consultants reported stress from 'disruption of home life as a result of being on call'. Fewer radiologists than other consultants reported stress from dealing with patients' physical suffering and emotional distress.

Sources of Satisfaction

'Having good relationships with patients', 'having good relationships with other staff members' and 'being perceived to do the job well by colleagues' were reported by both radiologists and consultants in other specialities as contributing very highly to overall job satisfaction (Table 2). 'Having variety in your job', 'having a high level of responsibility' and 'having a high level of autonomy' were also important sources of satisfaction. A smaller proportion of radiologists than other consultants experienced job satisfaction from 10 of the 17 sources of satisfaction measured here. Radiologists reported less satisfaction than other consultants from their relationships with patients and relatives, the responsibility and autonomy they had over their work, their job security, the extent to which full use is made of their clinical skills in their work, their involvement in activities which contribute to the development of the profession, research, and feeling they have sufficient staff and facilities to do a good job. There were no aspects of work which were more satisfying to radiologists than other consultants.

Adequacy of Training

A very large proportion of consultants from all specialist groups felt insufficiently trained in communication and management skills. However, the proportions were higher among radiologists than other consultants [communication skills: 80% ($n=168$) vs 47% ($n=310$); $\chi^2=69.05$, $P<0.0001$; management skills: 84% ($n=179$) vs 76% ($n=506$); $\chi^2=5.19$, $P=0.03$].

DISCUSSION

The differences in job stress and satisfaction reported by radiologists compared with consultants in other specialties are perhaps as might have been predicted, given the differences in the nature of the different roles, but this is the first study to demonstrate these differences using a rigorous and systematic approach.

This study demonstrates that work overload is perceived by consultants working in four diverse specialties, including radiology, as the leading source of job stress. This is in keeping with the fact that workloads in radiology have increased more rapidly over the past 20 years than the expansion in consultant posts [5]. The need for additional consultant manpower is evident. The inadequacy of current facilities and concerns over future funding are also clearly major sources of stress.

The finding that radiologists reported lower levels of satisfaction than other consultants from many of the sources of job satisfaction measured here is a matter for concern. This is particularly the case because job satisfaction has been shown to protect consultants' mental health from the damaging effects of job stress [2]. Because of the nature of the work undertaken by radiologists it is perhaps not surprising that radiologists derive less satisfaction than other consultants from their relationships with patients and relatives and indeed less stress from having to deal with patients' physical suffering and emotional distress.

However, recent changes in radiologists' role, such as the introduction of the Breast Screening Service, interventional radiology, magnetic resonance imaging, alongside the general rise in consumerism, make more demands of radiologists regarding their responsibility for and involvement in patient care. In order to help radiologists meet the demands of their changing role, some consideration should perhaps be given to their greater integration into the clinical team and greater involvement in multi-disciplinary approaches to patient care.

Consultants who feel insufficiently trained in communication and management skills are at greater risk of burnout [2]. It is of particular concern that, as a specialty, a greater proportion of radiologists report that they feel inadequately trained in communication skills than consultants in the other specialties, and a high proportion also feel inadequately trained in management skills. Effective training in communication and management skills should become a high priority in post-graduate medical education and Continuing Professional Development and the Royal Colleges may be in the best position to ensure this is carried out effectively.

Several of the items which were specific to radiologists contributed significantly to overall stress. Two of these, 'dealing with clinicians' requests for inappropriate examinations' and 'dealing with the continuous expectation of clinicians that you do their work immediately', appear to relate specifically to the clinical support service role of radiology. Do those radiologists who did not report this to be a major source of stress have solutions for other radiologists?

Nearly one-third of radiologists reported that being concerned about the effect of diagnostic errors on patients was a major source of stress. This again is perhaps in the nature of a radiologist's work, but can ways of alleviating this stress be found? Interestingly the predominant concern related to the effect on patients, rather than the threat of being sued for malpractice, which was reported by less than 10% of radiologists as a major source of stress. There is some evidence that radiologists working in breast screening report far higher levels of concern over the threat of litigation [6]. The current study did not examine differences in the job stress and satisfaction experienced across the subspecialities of radiology, but these may merit investigation.

We hope that these findings will stimulate debate amongst radiologists about ways in which their working lives could be improved. Reduction of stress and enhancement of satisfaction are both likely to impact positively on the mental welfare of consultants and may contribute to lower levels of early retirement and thus fewer unfilled posts. This may not only be of benefit to the individuals concerned, but may enhance the care given to patients.

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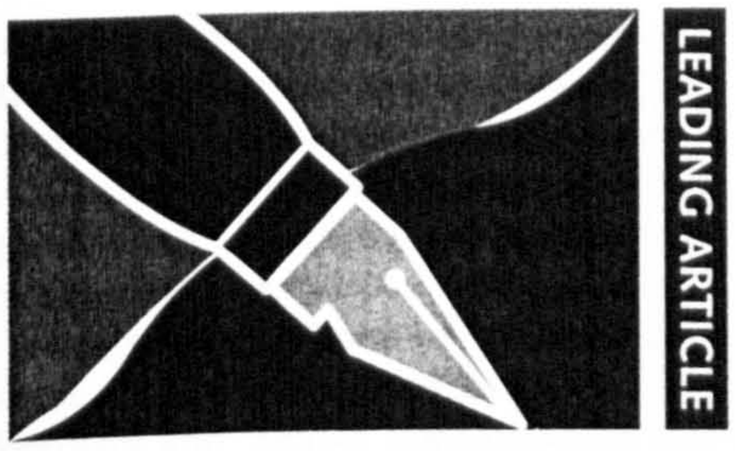
REFERENCES

1 Medical Workforce Standing Advisory Committee. *Planning the Medical Workforce*. London: Department of Health, 1997.
2 Ramirez A, Graham J, Richards M, Cull A, Gregory W. Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet* 1996;347:724–728.
3 Goldberg D, Williams P. *A Users' Guide to the General Health Questionnaire*. Berkshire: NFER-Nelson Publishing Co, 1988.
4 Maslach C, Jackson S. *Maslach Burnout Inventory*. 2nd edn. Palo Alto, California: Consulting Psychologists Press, 1986.
5 Royal College of Radiologists. *Medical Staffing and Workload in Clinical Radiology in the United Kingdom National Health Service*. London: Faculty of Clinical Radiology of the Royal College of Radiologists, 1993.
6 Field S. Breast screening issues. *Newsletter of the Royal College of Radiologists* 1998;54:1–7.



Surgical Stress: the Psychological Cost of a Surgical Career

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Surgery is a prestigious specialty, but one that makes heavy demands of those who practise it. The workload is high, involving frontline, often high risk, intervention with patients who may be distressed as a result of their condition. It is an intensely competitive specialty, at entry and beyond. The heavy demands may be expected to carry a psychological cost over the course of a surgical career.

A study of members of the Association of Surgeons of Great Britain and Ireland suggests surgeons have higher levels of anxiety than the general population.[1] This is in line with the evidence that hospital Consultants, overall, experience poorer mental health than the general population. Psychiatric morbidity was reported in 28% of Hospital Consultants, [2–4] which is clearly in excess of the 18% reported among the employed general population. There is little evidence to suggest, however, that surgeons have poorer mental health when compared with other hospital specialists. Two large studies, one examining British Consultants and the other Scottish Consultants only, found no differences in the mental health of Consultant surgeons compared with physicians, radiologists and oncologists.[2,3] There is, in fact, greater cause for concern for colleagues in certain other specialties, including anaesthetists, obstetricians and gynaecologists, psychiatrists and public health physicians, who do seem to experience a higher rate of mental ill-health.[3]

Further analysis of the UK study[2] shows that, though Consultant surgeons do not have poorer mental health than their colleagues, they experience more stress from their work. In particular, Consultants report more stress from overload and its effect on home life than radiologists and oncologists, and more stress from dealing with patients' suffering than gastroenterologists and radiologists. Over 50% of the surgeons in this study complained of stress as a result of the Junior Doctors' New Deal, and from being unable to use operating time effectively because of the organization of theatres being under the control of others; 70% experienced stress from dealing with the impact of the NHS reforms.

Alongside the high level of job stress experienced by surgeons in the UK in comparison with other specialists, they also reported higher levels of satisfaction from their work. High job satisfaction has been shown to be protective in the relationship between job stress and poor mental health among Consultants generally.[2] Surgeons in the UK study attributed this satisfaction to having good relationships with patients, relatives and staff, to the intellectual stimulation of their work, and to feeling well managed and resourced. Almost all surgeons reported experiencing satisfaction from performing a technically good operation, the core part of their job, and over 80% from helping patients through curing disease and controlling symptoms. In a survey of head and neck surgeons in the USA, 97% responded that they liked their work, and 45% liked it more than when they had begun to practise.[5]

A possible reason for surgeons reporting relatively high job stress but not poorer mental health may be that the type of doctors who choose surgery are intrinsically more resilient in dealing with stress at work compared with those who opt for other specialties. Students in the USA who choose surgery are more likely to perceive the stress they experience as favourable, and to have higher self-esteem and feel more in control of their lives, suggesting that doctors who choose surgery thrive or are challenged by a stressful environment and are personally better equipped to cope with it.[6] Anecdotal evidence does indeed suggest that personality characteristics of surgeons may be different from those of doctors in other specialties in ways that make them less likely to experience psychiatric morbidity as a result of the ongoing stress of their work. The 'surgical temperament' has been described as being 'activistic, egocentric, decisive, controlling and confident',[7] a stereotype reflected in the media by characters such as Sir Lancelot Spratt, Dr Kildare and Edgar Pascoe of *The Fragile Heart*. A study in the USA comparing practising surgeons with other types of doctor found surgeons to be less 'humanistic', using an authoritarian rather than a democratic approach to patients.[8] The surgeons were less aware of or concerned about social problems, were manipulative rather than cooperative in their approach to patients, less concerned for the psychological well-being of their patients, and put less emphasis on treating the whole patient rather than the disease. Further systematic research is needed to determine whether surgeons do indeed differ from other specialists on validated, measurable aspects of personality. Interestingly, a recent study using standardized personality inventories found similar levels of the type A stress-prone personality (extremely competitive, high achieving, impatient) among UK surgeons and other professional populations.[1]

The personality characteristics that enable surgeons to deal effectively with the stress of high-risk decision-making that characterizes their role, and their lack of self-doubt, may be essential for them to function as technically competent operators. The question arises, however, whether this approach is the best for non-surgical aspects of patient care. There is increasing emphasis on providing patient-centred care, including the provision of information to patients, patient participation in decision making about management, and attention to psychological and social, as well as physical, needs. The surgeon's temperament may not predispose him or her to be able to meet these demands easily. A lack of opportunity for patients to discuss treatment fully, or to discuss their emotional reaction with the key health professional involved in their care, may impair their adjustment to illness or injury. Addressing the broader aspects of patient care is important, not only because effective information-giving and communication benefits patients, but also because it is likely to protect the

mental health of surgeons. In the UK study, 45% of Consultant surgeons described themselves as feeling inadequately trained in communication skills, and these surgeons were at increased risk of mental health problems.[2]

Surgeons' methods of dealing with stress, which enable them to function effectively and protect themselves in the operating theatre, may present problems not only for providing 'whole patient care' but for others with whom they are in daily contact, including medical and nursing colleagues, secretaries and family. Doctors' wives generally give a far higher estimate of the number of times their husbands come home emotionally drained than do the doctors themselves, which suggests doctors are often unaware of experiencing stress. The strategies that surgeons adopt to survive in their job may cause them to be stress 'carriers'. One surgeon in the UK study observed that his wife was undergoing treatment for stress that was 'probably my stress'. Surgeons may have developed an effective way of coping with the particularly high demands of the surgical aspects of their work, but this may carry a cost for their patients, colleagues and family.

The challenge for today's surgeon is to meet the broadening range of demands of contemporary surgical practice and balance work and home life, while continuing to function as effective technical operators and protecting their own mental health. This requires the integration of traditional surgical skills with 'people-oriented' skills, such as communication and management. ◆

REFERENCES

1 Green A, Duthie H, Young H, Peters T. Stress in Surgeons. *Br J Surg* 1990; **77:** 1154–8.

2 Ramirez A, Graham J, Richards M, Cull A, Gregory W. Mental Health of Hospital Consultants: the Effects of Stress and Satisfaction at Work. *Lancet* 1996; **347:** 724–8.

3 Blenkin H, Deary I, Sadler A, Agius R. Stress in NHS Consultants. *BMJ* 1995; **310:** 534.

4 Borrill C S, Wall T D, West M *A et al.* Mental Health of the Workforce in NHS Trusts. Institute of Work Psychology, University of Sheffield and Department of Psychology, University of Leeds, 1996.

5 Johnson J, Wagner R, Rueger R, Goepfert H. Professional Burnout among Head and Neck Surgeons: Results of a Survey. *Head Neck* 1993; **15:** 557–60.

6 Linn B, Zeppa R. Does Surgery Attract Students who are More Resistant to Stress? *Ann Surg* 1984; **200(5):** 638–43.

7 Mizgala C, Mackinnon S, Walters B, Ferris L, McNeill I, Knighton T. Women Surgeons. Results of the Canadian Population Study. *Ann Surg* 1993; **218(1):** 37–46.

8 Abbott L. A Study of Humanism in Family Physicians. *J Fam Pract* 1983; **16(1):** 141–6.

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EDITORIAL

MENTAL HEALTH OF HOSPITAL CONSULTANTS

J. GRAHAM and A. J. RAMIREZ

INTRODUCTION

There is ongoing concern about the mental health of doctors. In the UK the suicide rate for medical practitioners is approximately twice the national average [1]. It is not just junior doctors who suffer mental health problems which may arise from stress at work [2]. Those at the senior level—hospital consultants—who are presumably a survivor population, also appear to be at risk [3–6]. Combining the results of three recent large UK studies, each of which used the General Health Questionnaire, the estimated prevalence of psychiatric morbidity among hospital consultants is 28% [3, 4, 6]. This is clearly in excess of the 18% reported among the employed general population according to a survey also using the General Health Questionnaire [7]. The high level of psychiatric morbidity among hospital consultants is in fact similar to the level reported among junior doctors during their preregistration year [2, 6]. It is also similar to that reported by senior doctors working in certain nonhospital settings, including general practitioners [5] and palliative physicians [8], although community medical officers and dentists have significantly lower rates of psychiatric morbidity [6].

Because their work involves dealing with other people's physical, psychological, and social problems, doctors are also thought to be at particular risk of burnout, a more specific work-related form of distress [9]. Burnout is a syndrome that has no agreed-upon definition, but the components are generally accepted to be emotional exhaustion, treating people in an unfeeling way (depersonalization), and a sense of low personal accomplishment [10]. A standard measure of burnout, the Maslach Burnout Inventory, which incorporates these three components, has been developed and validated in a variety of occupational groups and in a number of countries [11–14]. Whether burnout exists as a syndrome separate from other negative affective states experienced more pervasively across other domains of life (i.e., psychiatric morbidity) remains unestablished, although there is accruing evidence for its specificity. Interestingly, while hospital consultants and palliative physicians report similar levels of psychiatric morbidity, hospital consultants experience significantly higher levels of burnout than their colleagues dedicated to the care of the dying, the majority of whom are based in hospices [8]. Unfortunately, there are no adequate data to compare levels of burnout among consultants with those of other occupational groups.

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RISK FACTORS FOR POOR MENTAL HEALTH

According to an interactional model of stress [15, 16], the stresses inherent in the practice of medicine precipitate burnout and psychiatric morbidity in those who are psychologically vulnerable. Family psychiatric history; childhood experience of illness, death, and emotional neglect; and particular personality traits have all been described as vulnerability factors for distress among doctors [17, 18]. Among consultants specifically, those who report high levels of neuroticism are also more likely to report psychiatric morbidity and burnout [16]. The stages of a stress model for the mental health of doctors include: (i) environmental demand, such as excess workload and lack of professional support; (ii) perceptions of demand and the inability to cope (e.g., overload); (iii) maladaptive coping responses such as working longer hours and drinking alcohol; and (iv) poor mental health [15].

The occupational risk factors for poor mental health among hospital consultants, as for all doctors, include high levels of stress at work. The most commonly reported source of job stress among consultants is overload and its effect on home life. Organizational constraints, including feeling poorly managed and resourced and perceiving that professional standards are compromised by external factors, are also major work stressors [3, 6, 19, 20]. Consultants reporting stress from these two aspects of work are at increased risk of both burnout and psychiatric morbidity. Stress from dealing with patients' suffering contributes less to consultants' overall job stress, but is nevertheless also a risk factor for poor mental health [3].

Less attention has focused on the satisfaction consultants derive from their work, but in a national survey of the mental health of hospital consultants we found that job satisfaction protects the mental health of consultants against the adverse effect of job stress [3]. Thus, for any reported level of job stress, those consultants with low job satisfaction experience worse mental health than those with high job satisfaction. This protective effect applies to both burnout and psychiatric morbidity. Alongside having good relationships with patients, relatives, and staff, and having professional status and esteem, the most highly rated sources of job satisfaction among consultants are having high levels of autonomy and variety in the job. These findings suggest that, faced with the high demands of hospital medicine, the amount of discretion a consultant has over his/her work is an important determinant of mental health.

Consultants working in different hospital specialties appear to experience different rates of burnout, but not psychiatric morbidity. We have shown that radiologists suffer significantly higher levels of burnout than surgeons, gastroenterologists, and oncologists [3]. To what extent such a difference in risk across specialties reflects differences in the nature of the work or differences in the nature of the doctor is difficult to discern. It may be that the particular personal characteristics of doctors attracted into different specialist careers determine the degree of their psychological vulnerability. A recent study found that psychiatrists differed from surgeons and physicians on a number of personality traits and that, although psychiatrists reported significantly fewer clinical work demands than the surgeons and physicians, they reported significantly more burnout and depression [21].

The nature of consultants' work does, of course, vary across specialties. For example, among the four consultant groups just described, surgeons and gastroenterologists have on-call responsibilities, oncologists have considerable exposure to dying

patients, and radiologists provide a clinical support service. The extent to which different aspects of work are perceived as stressful or satisfying by different specialist groups seems to influence their rates of burnout. Thus, surgeons report high levels of job stress from overload, organizational constraints, and dealing with patients' suffering, but do so alongside high levels of job satisfaction from having good relationships at work and from their professional status. In contrast, radiologists report generally low levels of stress, but also low levels of satisfaction from all the main sources. Surgeons are probably protected from poor mental health, in part, by the considerable autonomy they have over their work and also by the positive feedback they receive from patients and relatives. Radiologists, by the nature of their work, have less opportunity to receive positive feedback from patients and relatives, whereas colleagues often give negative feedback when there has been a diagnostic error. The work patterns of radiologists are less at their discretion, having to deal with colleagues' requests for inappropriate examinations and with the continuous expectations of colleagues to do their work immediately.

Another factor that appears to increase the risk of burnout, but not psychiatric morbidity, among hospital consultants is skills training. A large proportion of consultants have described themselves as inadequately trained in communication and management skills (55% and 78%, respectively), and these consultants have been shown to have an increased rate of burnout. Being younger in age and having spent fewer years in post as a consultant are both risk factors for burnout [3, 20]. This is counterintuitive to the notion that burnout develops cumulatively over years of dealing with exposure to stress at work. Being single also increases the risk of burnout [3].

Gender has a marked influence on the mental health of hospital consultants. Female consultants have been shown to experience a significantly higher prevalence of psychiatric morbidity than their male counterparts (37% vs. 23%) [6]. This striking gender difference also applies to junior doctors and managers and cannot be explained by female–male differences in work-related factors such as perceived work demands and patient contact. This gender difference is not evident among other staff in NHS Trusts, such as nurses, radiographers, technical/laboratory staff, and administrative staff. It seems, therefore, that it is not being female per se which is the risk factor, but being female in particular jobs, namely medicine and management, where the NHS culture and hierarchies may have a more adverse impact on women than men [6]. Female consultants do indeed report greater job stress from the organizational structure and climate than male consultants [22].

Stress at work clearly exists alongside any stress consultants may be experiencing in other areas of their lives. The relative impact of stress from work and other domains requires careful study. An interesting preliminary finding from our study is that stressful events outside work (i.e., those involving personal relationships and the health of oneself and close others) appear to increase consultants' risk not only of pervasive psychiatric morbidity, but also specifically of burnout.

The way in which consultants respond to stress at work seems to be related to their mental health. Our study shows that consultants with psychiatric morbidity appear to be more likely to respond to stress by increasing their alcohol consumption, working longer hours, and eating less healthily. They are less likely than their mentally healthy colleagues to respond to stress by pursuing hobbies/leisure activities,

exercising/participating in sports, and talking to colleagues informally. This highlights how consultants experiencing stress at work can get caught on a vicious downward spiral of behavior likely to be harmful not only to their mental, but also their physical health.

IMPLICATIONS

The continued exposure of hospital consultants to a high risk of burnout and psychiatric morbidity will not only involve the ongoing personal suffering of doctors and their families, but may also constitute a threat to the quality of patient care they deliver. It may also increase the trend for early retirement and the burden on colleagues remaining behind. Although burnout and psychiatric morbidity in consultants is accounted for, in part, by a predisposition to experience negative emotion, changing the selection criteria for entry into medicine to screen out those who are vulnerable to psychological distress is not advocated. In addition to the ethical issues and the difficulty of designing a screening instrument able to accurately identify students at risk, this approach may exclude from medicine those who are self-critical and empathic, who are likely therefore to have high standards of work and excellent relationships with their patients. Rather, efforts should focus on the occupational risk factors for poor mental health among consultants. The most frequently reported stressors, work overload and organizational constraints, are potentially modifiable, although they appear to have been exacerbated by the introduction of commercial pressures into the NHS. Maintaining or enhancing aspects of the consultants' role that provide job satisfaction offers another avenue through which to protect consultants against the adverse effects of job stress. Having discretion over one's work is a fundamental component of job satisfaction for consultants, as for other professionals, and the high demands of medicine may only continue to be tolerated if consultants can have control over their work. Clinical autonomy is central to that control, yet this is threatened by changes in the NHS which seek to control consultants' working lives in ever greater measure.

Adequate time must be made available for continuing professional development. In particular, improving consultants' training in communication and management skills is likely to increase their personal competence in meeting the demands of contemporary medicine. Further research is required to explore the risk factors for the particularly poor mental health of female consultants, alongside female junior doctors and hospital managers, focusing on the adverse impact of the culture and hierarchies within the NHS.

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REFERENCES

1. Charlton J, Kelly S, Dunnell K, Evans B, Jenkins R. Suicide deaths in England and Wales: trends in factors associated with suicide deaths. Popul Trends 1993;69:34–42.
2. Firth-Cozens J. Emotional distress in junior house officers. BMJ 1987;295:533–536.
3. Ramirez A, Graham J, Richards M, Cull A, Gregory W. Mental health of hospital consultants: the effects of stress and satisfaction at work. Lancet 1996;347:724–728.

4. Blenkin H, Deary I, Sadler A, Agius R. Stress in NHS consultants. BMJ 1995;310:534.
5. Caplan R. Stress, anxiety and depression in hospital consultants, general practitioners and senior health managers. BMJ 1994;309:1261–1263.
6. Borrill C, Wall T, West M, et al. Mental health of the workforce in NHS Trusts. Phase 1, final report. Institute of Work Psychology, University of Sheffield and Department of Psychology, University of Leeds, Leeds, UK 1996.
7. British Household Panel Survey (computer file). Principal investigator: ESRC Research Centre. University of Essex, Data Archive Distributor, Essex, UK 1994.
8. Graham J, Ramirez A, Cull A, Finlay I, Hoy A, Richards M. Job stress and satisfaction among palliative physicians. Palliat Med 1996;10:185–194.
9. Freudenberger H. Staff burnout. J Soc Issues 1974;30:159–165.
10. Mayou R. Burnout. BMJ 1987;295:284–285.
11. Maslach C, Jackson S. Maslach Burnout Inventory (2nd ed.). Palo Alto, California: Consulting Psychologist's Press 1986.
12. Green D, Walkey F, Taylor A. The three factor structure of the Maslach Burnout Inventory: a multicultural, multinational confirmatory study. J Soc Behav Personality 1991;6:453–472.
13. Meier S. The construct validity of burnout. J Occup Psychol 1984;57:211–219.
14. Golembiewski R, Munzenrider R, Carter D. Phases of progressive burnout and their work site covariants: critical issues in OD research and praxis. J Appl Behav Sci 1983;19:461–481.
15. Cox T. Stress. London: Macmillan 1978.
16. Deary I, Blenkin H, Agius R, Endler N, Zealley H, Wood R. Models of job-related stress and personal achievement among consultant doctors. Br J Psychol 1996;87:3–29.
17. Johnson W. Predisposition to emotional distress and psychiatric illness among doctors: the role of unconscious and experiential factors. Br J Med Psychol 1991;64:317–329.
18. Firth-Cozens J. The role of early family experience in the perception of organisational stress—fusing clinical and organisational perspectives. J Occup Org Psychol 1992;65:61–75.
19. Ramirez A, Graham J, Richards M, et al. Burnout and psychiatric disorder among cancer clinicians. Br J Cancer 1995;71:1263–1269.
20. Agius R, Blenkin H, Deary I, Zealley H, Wood R. Survey of perceived stress and work demands of consultant doctors. Occup Environ Med 1996;53:217–224.
21. Deary I, Agius R, Sadler A. Personality and stress in consultant psychiatrists. Int J Soc Psychol 1996;42:112–123.
22. Swanson V, Power K, Simpson R. A comparison of stress and job satisfaction in female and male GPs and consultants. Stress Med 1996;12:17–26.

THE LANCET

Mental health of hospital consultants: the effects of stress and satisfaction at work

A J Ramirez, J Graham, M A Richards, A Cull, W M Gregory

Summary

Background Burnout and psychiatric morbidity among gastroenterologists, surgeons, radiologists, and oncologists in the UK have been estimated by means of a questionnaire-based survey. The relationship between consultants' mental health and their job stress and satisfaction, as well as their job and demographic characteristics, were also examined.

Methods Psychiatric morbidity was estimated using the 12-item General Health Questionnaire. The three components of burnout—emotional exhaustion, depersonalisation, and low personal accomplishment—were assessed using the Maslach Burnout Inventory. Job stress and satisfaction were measured using study-specific questions.

Findings Of 1133 consultants, 882 (78%) returned questionnaires. The estimated prevalence of psychiatric morbidity was 27%, with no significant differences between the four specialist groups. Radiologists reported the highest level of burnout in terms of low personal accomplishment. Job satisfaction significantly protected consultants' mental health against job stress. Three sources of stress were associated with both burnout and psychiatric morbidity: feeling overloaded, and its effect on home life; feeling poorly managed and resourced; and dealing with patients' suffering. Burnout was also associated with low satisfaction in three domains: relationships with patients, relatives, and staff; professional status/esteem; intellectual stimulation. In addition, being aged 55 years or less and being single were independent risk factors for burnout. Burnout was also more prevalent among consultants who felt insufficiently trained in communication and management skills.

Interpretation Consultants' mental health is likely to be protected against the high demands of medical practice by maintaining or enhancing job satisfaction, and by providing training in communication and management skills.

Lancet 1996; **347**: 724–28

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Introduction

A *Lancet* editorial has argued that reforms to the health service in the UK threaten to increase the stress, and decrease satisfaction that doctors derive from their work.[1] There is ongoing concern about the mental health of medical practitioners.[2,3] In the UK the suicide rate for doctors is approximately twice the national average.[4] Doctors are also thought to be susceptible to "burnout", a description for work-related distress that combines emotional exhaustion, depersonalisation (treating people in an unfeeling, impersonal way), and a sense of low personal accomplishment.[5]

Burnout and more generalised psychiatric morbidity warrant careful consideration, not only because they reflect the personal suffering of doctors, but also because they risk impairing the quality of care doctors are expected to deliver. Most of the attention has been focused upon junior doctors and their long hours of work;[6] however, there have been reports of distress among senior hospital doctors.[7,8]

This study estimates the prevalence of burnout and psychiatric morbidity among four hospital consultant groups: gastroenterologists, surgeons, clinical radiologists, and clinical/medical oncologists. It will be noted that these groups include two with on-call responsibilities (gastroenterologists and surgeons), one with considerable exposure to dying patients (oncologists), and one providing a clinical support service (radiologists). Our primary hypothesis was that high levels of job stress and low levels of job satisfaction would be associated with burnout and psychiatric morbidity. One of our main aims was to identify the various components of job stress, and satisfaction, so that practical proposals for improving the working lives of doctors could be made.

Methods

Participants

1133 UK consultants were asked to respond to our questionnaire. They comprised a 2 in 3 random sample of gastroenterologists who were members of the British Society of Gastroenterology (299), all surgeons who were members of the British Association of Surgical Oncology (252), a 1 in 5 random sample of clinical radiologists ascertained through the Royal College of Radiologists (260), and all British clinical and medical oncologists, ascertained through the Royal Colleges of Radiologists and Physicians (322).

The questionnaires

Each consultant was sent a questionnaire booklet which assessed:

- Demographic and job characteristics and clinicians' perception of the adequacy of medical training.
- Psychiatric morbidity with the 12-item version of the General Health Questionnaire (GHQ), a widely accepted and reliable screen for psychiatric morbidity in community samples and occupational settings.[9,10] 12 symptoms of psychiatric morbidity (eg, depression, loss of confidence, sleep disturbance) are rated according to whether they have been experienced "not at all",

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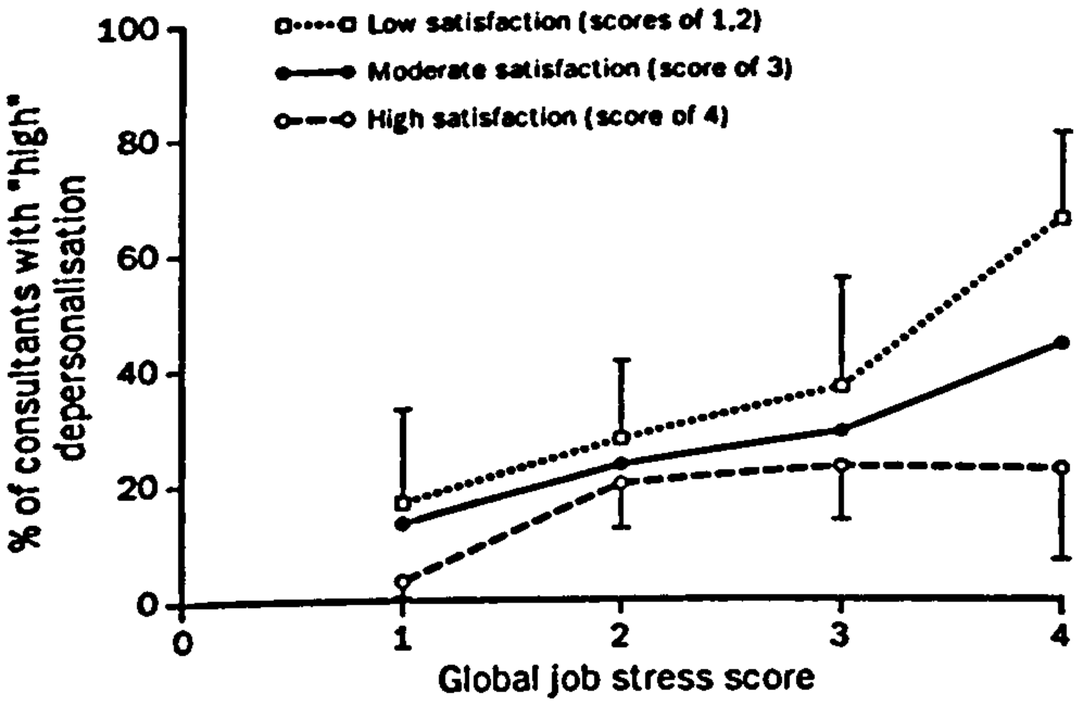

Figure 2: Effect of job satisfaction on the relation between job stress and depersonalisation (with 95% CI)

stress by consultants was related to having high emotional exhaustion, high depersonalisation, and psychiatric morbidity. Global job satisfaction was positively related to high personal accomplishment and inversely related to high emotional exhaustion, high depersonalisation scores, and estimated psychiatric morbidity.

The global ratings of job stress and job satisfaction were inversely related to each other. The influence of global job satisfaction on the relationship between global job stress and MBI and GHQ scores, indicative of burnout and psychiatric morbidity, was examined. Higher job satisfaction had a significant protective effect on the relationship between job stress and emotional exhaustion (OR=2·9, p<0·0001, figure 1).

Global job satisfaction was similarly protective against the impact of global job stress on depersonalisation (figure 2). At each point on the stress scale, consultants with low satisfaction were more likely to have high depersonalisation than those with moderate satisfaction (OR=1·5, p<0·001), who in turn were more likely to have high depersonalisation than those with high satisfaction (OR=1·5, p<0·001).

The adverse effect of global stress on estimated psychiatric morbidity (GHQ ≥4) was also significantly ameliorated by global satisfaction (p<0·0001) (figure 3). Logistic modelling suggested that the higher the stress score the greater the protective effect of satisfaction. Using the derived logistic regression model to compare two consultants with low stress (score of 1), but different levels of satisfaction (scores 1 or 2 *vs* 4), the consultant with lower satisfaction has a moderately increased risk of

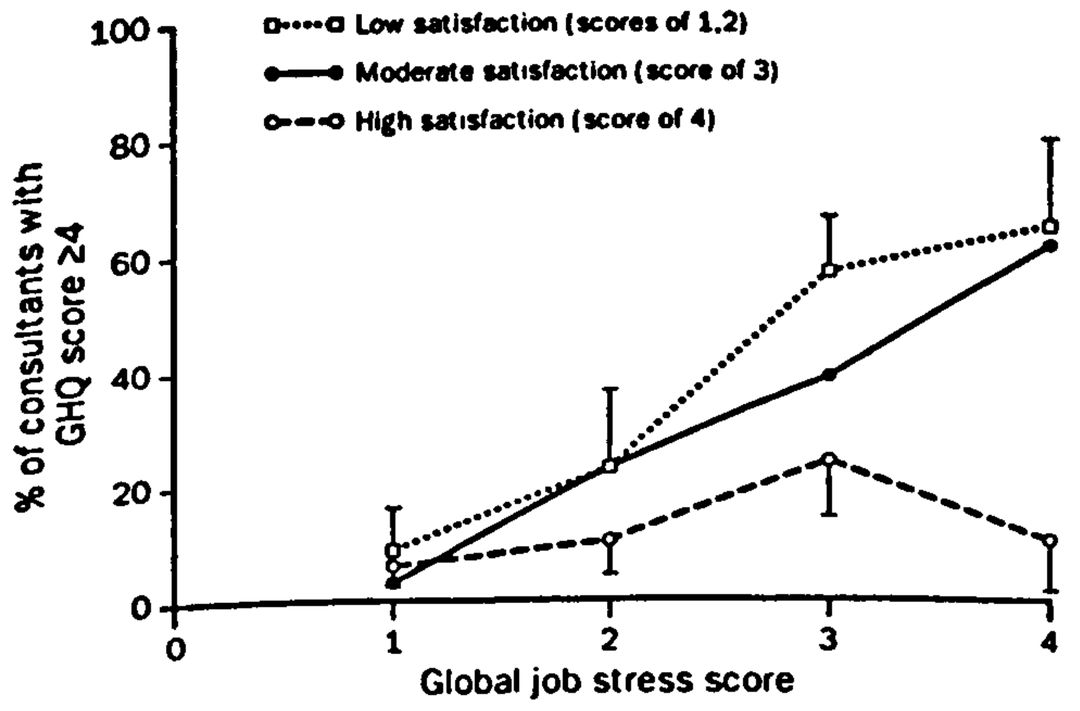

Figure 3: Effect of job satisfaction on the relation between job stress and estimated psychiatric morbidity (with 95% CI)

Factor	Percentage of responses in factor rated as contributing "quite a bit" or "a lot" to overall job stress			
	Gastroenterologists %	Surgeons %	Radiologists %	Oncologists %
Feeling overloaded and its effect on home life	61	63	51	56
Feeling poorly managed and resourced	39	41	45	39
Having managerial responsibilities	31	33	28	29
Dealing with patients' suffering	17	31	13	36
Significance of differences	**Overload p**	**Feeling poorly managed and resourced p**	**Managerial responsibilities p**	**Patients' suffering p**
Gastroenterologists *vs* surgeons	NS	NS	NS	<0·001
Gastroenterologists *vs* radiologists	<0·0001	<0·01	NS	NS
Gastroenterologists *vs* oncologists	<0·01	NS	NS	<0·0001
Surgeons *vs* radiologists	<0·0001	NS	NS	<0·0001
Surgeons *vs* oncologists	<0·001	NS	NS	NS
Radiologists *vs* oncologists	<0·05	<0·01	NS	<0·0001

NS=not significant.

Table 2: Stress factor scores according to specialist group

having a GHQ-12 score of 4 or more indicating likely psychiatric morbidity (odds ratio=1·6). However, comparing two consultants with high stress (score of 4) and satisfaction scores of 1 or 2 *vs* 4, the increased risk of having GHQ-12 of 4 or more is much greater (OR=6·2).

Sources of job stress

16 of 25 questionnaire items concerning perceived sources of stress were aggregated into four stress factors by factor analysis: work overload and effect on home life; poor management and resources; managerial responsibilities assumed; and dealing with patients' suffering. Of these four factors, work overload made the greatest contribution to overall job stress, followed by feeling poorly managed and resourced, then managerial responsibilities, and lastly dealing with patients' suffering. Among items which did not aggregate into the above factors, keeping up to date with current clinical and research practices, being responsible for the quality of the work of other staff and having to deal with distressed, angry, or blaming relatives were scored as contributing substantially to overall job stress by more than 30% of consultants. In contrast the threat of being sued for malpractice, feeling poorly paid and difficulties with junior doctors and administrative staff were scored by less than 20% of consultants. Differences in levels of stress between the specialist groups are shown in table 2.

Sources of job satisfaction

15 of 17 items concerning perceived sources of satisfaction aggregated into four factors: good relationships with patients, relatives, and staff; professional status/esteem; intellectual stimulation; and good management and resources. Of the four factors, having good relationships with patients, relatives, and staff and having professional status/esteem jointly made the greatest contribution to overall job satisfaction, followed by deriving intellectual stimulation and feeling well managed and resourced. Two individual items which did not form part of any of the four factors—having a high

level of autonomy and having variety on the job—were also important sources of satisfaction, with 60% and 83% of consultants respectively scoring them as contributing substantially to overall job satisfaction. The overall pattern across the specialist groups was for surgeons to report the highest levels of satisfaction for all four factors and for the radiologists to report the lowest levels (table 3).

Demographic characteristics, stress, satisfaction, burnout, and psychiatric morbidity

The demographic/job characteristics and stress and satisfaction factors which were associated with MBI and GHQ scores indicative of burnout and/or psychiatric morbidity at the $p<0.01$ level, according to logistic regression analyses, were as follows. High emotional exhaustion was associated with high levels of stress from feeling overloaded and its effects on home life, feeling poorly managed and resourced, and dealing with patients' suffering, as well as low satisfaction levels from intellectual stimulation. In addition, being aged 55 years or more and being single were independent risk factors for high emotional exhaustion scores. High depersonalisation was similarly associated with high levels of stress from work overload, low satisfaction, and from dealing with patients' suffering as well as low levels of satisfaction from relationships with patients, relatives, and staff. High depersonalisation was also associated with being aged 55 years or less. Low personal accomplishment was associated with low satisfaction from relationships and low professional status/esteem. Estimated psychiatric morbidity (GHQ-12 ≥4) was associated with high levels of stress from perceived work overload, poor management and resources, and having to deal with patients' suffering.

Adequacy of training

Gastroenterologists, surgeons and oncologists were asked whether they felt they had received adequate training in the treatment of disease and in symptom control. The overwhelming majority felt they had received adequate training in these aspects of patient care (96% and 84% respectively). All four specialist groups were asked about the adequacy of their training in communication and management skills. Only 45% judged that they had received adequate training in communication skills and only 22% in management skills.

Consultants who felt insufficiently trained in communication skills were more likely to feel high depersonalisation and low personal accomplishment than those who felt themselves to be sufficiently trained. More of those who felt inadequately trained in management skills had high depersonalisation and low personal accomplishment.

Fewer of the consultants who felt insufficiently trained in communication skills reported job satisfaction from having good relationships with patients, relatives and staff, having professional status and esteem, deriving intellectual stimulation, and feeling well managed and resourced.

More of the consultants who felt insufficiently trained in communication skills and management skills reported feeling poorly managed and resourced as a source of stress than those who felt sufficiently trained. In addition, more of those who felt insufficiently trained in management skills reported that feeling overloaded and its effect on home life contributed to their job stress.

Satisfaction factor	Percentage of responses in factor rated as contributing "quite a bit" or "a lot" to overall job stress			
	Gastroenterologists %	Surgeons %	Radiologists %	Oncologists %
Having good relationships with patients, relatives and staff	76	83	64	75
Having professional status/esteem	76	80	72	73
Having intellectual stimulation	45	59	39	44
Feeling well managed and resourced	46	52	37	42
Significance of differences	**Good relationships p**	**Professional status/ esteem p**	**Intellectual stimulation p**	**Feeling well managed and resourced p**
Gastroenterologists vs surgeons	<0·001	NS	<0·0001	<0·01
Gastroenterologists vs radiologists	<0·0001	NS	<0·05	<0·0001
Gastroenterologists vs oncologists	NS	NS	NS	<0·05
Surgeons vs radiologists	<0·0001	<0·01	<0·0001	<0·0001
Surgeons vs oncologists	<0·001	<0·01	<0·0001	<0·0001
Radiologists vs oncologists	<0·0001	NS	<0·05	<0·05

NS=not significant.

Table 3: Satisfaction factor scores according to specialist group

Discussion

This is the first study to examine both job stress and satisfaction among hospital consultants and the impact of both of these upon doctors' mental health. The response rate in this survey was high. The findings are therefore likely to be a valid account of the effect of job stress and satisfaction on the mental health of the whole population of consultants asked to participate. A follow-up survey is planned of the consultants who participated in this study to examine the effects of change over time, and to test predictions based on the current findings.

This study focused upon occupational risk factors for poor mental health. It is likely, of course, that personality also plays an important causal role in burnout and psychiatric morbidity among doctors. Assessment of personality was not however undertaken in this survey because the intention was to concentrate on potentially remediable issues.

The estimated prevalence of psychiatric morbidity, based on GHQ-12 scores of 4 or more, among British consultants in this study (27%) is broadly similar to the prevalence of 21% recently reported among 500 Scottish consultants using a 28-item version of the GHQ with a cut off of 6 or more.[6] The relatively large number of consultants in individual specialties in the current study supports and strengthens the findings of the Scottish study that there are no significant differences in the levels of psychiatric morbidity between consultant physicians, surgeons, and radiologists. The levels of psychiatric morbidity reported in both these studies are much lower than the 47% reported by Caplan[7] based on all 81 hospital consultants working in the North Lincolnshire Health Authority.

Importantly, the findings of this study indicate that job satisfaction protects the mental health of consultants against job stress. The occupational research of Karasek[14] indicates that, for individuals involved in jobs with high

demands such as medicine, the amount of discretion a person has over his/her work is an important determinant of mental health. This study confirms that autonomy and feeling well managed and resourced make a substantial contribution to overall job satisfaction. In this context, the transfer of various responsibilities from clinicians to managers may undermine professional morale, as may the practice of establishing standards against which doctors' performance is judged, without their involvement.

Looking at the differences between the specialist groups, surgeons generally had the highest scores for stress and satisfaction factors. In contrast, radiologists reported the lowest scores on the stress factors (with the exception of feeling poorly managed and resourced, for which they reported the highest scores) and also had the lowest scores for all four satisfaction factors. Relatedly, radiologists reported the most burnout in terms of low personal accomplishment. It is likely that surgeons are protected from burnout and psychiatric morbidity, in part, by the considerable control and discretion they have over their work and also by the positive and immediate feedback that they regularly receive from patients and relatives. Radiologists, by the nature of their role as a clinical support service, do not benefit to the same extent from positive feedback from patients and relatives, while feedback from colleagues is often negative when there has been a diagnostic error. The work patterns of radiologists are less at their discretion, having to deal with colleagues' requests for inappropriate examinations and with the continuous expectations of colleagues to do their work immediately.

The finding that a large proportion of consultants considered that they had received inadequate communication and management skills training and that these consultants were at increased risk of burnout, underlines the need for more effective training in communication and management skills.

Significantly reducing the workload of consultants may not be achievable with the introduction of commercial pressures in the health service. The mental health of consultants may nevertheless be protected by maintaining or enhancing their job satisfaction through giving them autonomy and variety in their work, as well as providing effective training in communication and management skills.

The contribution of job stresses to the suicide rate among doctors requires investigation.

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References

1 Anonymous. Burnished or burnt out: the delights and dangers of working in health. *Lancet* 1994; 344: 1583–84.
2 BMA. Stress and the medical profession. London: British Medical Assocation, 1992.
3 BMA. The morbidity and mortality of the medical profession. London: British Medical Association Board of Science and Education, 1993.
4 Charlton J, Kelly S, Dunnell K, Evans B, Jenkins R. Suicide deaths in England and Wales: trends in factors associated with suicide deaths. *Popul Trends* 1993; 69: 34–42.
5 Freudenberger H. Staff burnout. *J Soc Issues* 1974; 30: 159–65.
6 Firth-Cozens J. Emotional distress in junior house officers. *BMJ* 1987; 295: 533–36.
7 Caplan R. Stress, anxiety and depression in hospital consultants, general practitioners, and senior health managers. *BMJ* 1994; 309: 1261–63.
8 Blenkin H, Deary I, Sadler A, Agius R. Stress in NHS consultants. *BMJ* 1995; 310: 534.
9 Goldberg D, Williams P. A user's guide to the General Health Questionnaire. Berkshire (UK): NFER-Nelson Publishing Co, 1988.
10 Bank M, Clegg C, Jackson P, Kemp N, Stafford E, Wall T. The use of the general health questionnaire as an indication of mental health in occupational settings. *J Occ Psychology* 1980; 53: 187–94.
11 Maslach C, Jackson S. Maslach Burnout Inventory (2nd ed). Palo Alto California: Consulting Psychologist's Press, 1986.
12 Simon R. Confidence intervals for reporting results of clinical trials. *Annals Int Med* 1986; 105: 49–435.
13 Silvey S. The likelihood-ratio test and alternative "large sample" equivalents of it. In: Silvey S, ed. Statistical inference. Baltimore: Penguin, 1970: 108–22.
14 Karasek R. Job demands, job decision latitude, and mental strain: implications for job redesign. *Administrative Science Quarterly* 1979; 24: 285–308.

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Burnout and psychiatric disorder among cancer clinicians

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Summary The prevalence and causes of 'burnout' and psychiatric disorder among senior oncologists and palliative care specialists have been measured in a national questionnaire-based survey. All consultant non-surgical oncologists in the UK were asked to participate. Sources of work-related stress and satisfaction were measured using study-specific questions which were aggregated into factors. Psychiatric disorder was estimated using the 12-item General Health Questionnaire. The three components of 'burnout' – emotional exhaustion, depersonalisation and low personal accomplishment – were assessed using the Maslach Burnout Inventory. Three hundred and ninety-three out of 476 (83%) consultants returned their questionnaires. The estimated prevalence of psychiatric disorder in cancer clinicians was 28%, and this is similar to the rate among British junior house officers. The study group had equivalent levels of emotional exhaustion and low personal accomplishment to those found in American doctors and nurses, but lower levels of depersonalisation. Among cancer clinicians, 'burnout' was more prevalent among clinical oncologists than among medical oncologists and palliative care specialists. Psychiatric disorder was independently associated with the stress of feeling overloaded ($P < 0.0001$), dealing with treatment toxicity/errors ($P < 0.004$) and deriving little satisfaction from professional status/esteem ($P = 0.002$). 'Burnout' was also related to these factors, and in addition was associated with high stress and low satisfaction from dealing with patients, and with low satisfaction from having adequate resources (each at a level of $P \leq 0.002$). Clinicians who felt insufficiently trained in communication and management skills had significantly higher levels of distress than those who felt sufficiently trained. If 'burnout' and psychiatric disorder among cancer clinicians are to be reduced, increased resources will be required to lessen overload and to improve training in communication and management skills.

Keywords: burnout; psychiatric disorder; stress; satisfaction; doctors; cancer

Doctors have better physical health, but appear to have poorer mental health, than the general population (BMA, 1992, 1993). Suicide stands out among medical practitioners as a prominent cause of death. The standardised mortality rate for suicide among male doctors is 172 and among single female doctors is 371 (OPCS, 1986). These disturbing figures may reflect one extreme consequence of high levels of psychiatric disorder among doctors (Rucinski and Cybulska, 1985).

Doctors, alongside other health workers, are also believed to be at risk of a syndrome of work-related distress, termed 'burnout' by Freudenberger (1974). Though there is no agreed definition of burnout, it is usually seen as having three related but independent components. These are emotional exhaustion, depersonalisation (treating patients and other people as if they were objects) and low productivity accompanied by feelings of low achievement (Cherniss, 1980). The importance of 'burnout' and psychiatric disorder lies in their implications, not only for the personal suffering of doctors, but in the risk they carry for impairing the delivery of health care.

Many of the sources of stress to which doctors are exposed are common to all sectors of the profession, but there may be particular problems related to individual medical specialties and different stages of the medical career (BMA, 1992). It has been argued that cancer medicine is inherently stressful because of the frequent exposure to death and dying and the conflict between the curative goals, on which most training is based, and the palliative goals of much cancer care (Delvaux *et al.*, 1988). A recent descriptive study conducted in the USA has suggested that American oncologists do indeed experience high levels of 'burnout' (Whippen and Canellos, 1991).

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The aims of this study were to assess the prevalence of 'burnout' and psychiatric disorder among senior oncologists and palliative care specialists in the UK. The aspects of work which cancer clinicians perceive as stressful and satisfying have also been evaluated. To find possible causes for 'burnout' and psychiatric disorder experienced by cancer clinicians, the relationships between distress and job and demographic characteristics, as well as perceived sources of job stress and satisfaction, were examined. The intention of this study was to derive findings that would lead to practical proposals for improving the quality of the working life of cancer clinicians and thereby enhance the effectiveness of their work.

Methods

Subjects

All consultant non-surgical oncologists working in the UK were asked to participate in this questionnaire-based survey. The questionnaires were sent to 476 consultants, including 69 medical oncologists, 253 clinical oncologists (previously known as radiotherapists) and 154 palliative care specialists. The subjects were ascertained in collaboration with the Royal College of Physicians, the Royal College of Radiologists and the Association for Palliative Medicine.

The questionnaires

Each subject was sent a questionnaire booklet which assessed:

1 Demographic and job characteristics, including whether clinicians considered they were sufficiently trained in disease treatment, symptom control, communication skills and management skills.
2 General psychological health, using the 12-item version of the General Health Questionnaire (GHQ), which was developed for use as a screening tool to determine

psychiatric disorder in community samples and occupational settings involving large numbers of people (Goldberg and Willaims, 1988). The questionnaire enquires about the experience of psychological, social and somatic symptoms over the past few weeks. Each item is measured on a four-point scale. The prevalence of psychiatric disorder was estimated by using the scoring method of the GHQ in which each item is scored 0 (less or no more than usual) or 1 (rather or much more than usual), giving a maximum score of 12. Studies validating the GHQ-12 against standardised psychiatric interviews indicate that individuals scoring 4 or more have a high probability of being 'cases' of psychiatric disorder (Goldberg and Williams, 1988), and this conservative threshold was therefore applied.

3 Symptoms of 'burnout' using the Maslach Burnout Inventory (MBI) (Maslach and Jackson, 1986). This consists of 22 statements about feelings and attitudes which assess the three aspects of the 'burnout' syndrome. Each aspect is measured on a separate subscale. The emotional exhaustion subscale (nine items) assesses feelings of being emotionally overextended and exhausted by work. The depersonalisation subscale (five items) measures an unfeeling and impersonal response towards people (patients). The personal accomplishment subscale (eight items) assesses feelings of competence and successful achievement in work with people (patients). Each item is measured on a seven-point Likert scale of frequency with which feeling/attitudes are experienced. Scores on these subscales are considered 'low', 'average' or 'high' according to predetermined cut-off scores based on normative data (Maslach and Jackson, 1986). Scores are considered high if they are in the upper third of the normative distribution, average if they are in the middle third and low if they are in the lower third. 'Burnout' is reflected in 'high' *vs* 'average'/'low' scores on the emotional exhaustion and depersonalisation subscales and in 'low' *vs* 'average'/'high' scores on the personal accomplishment subscale.

4 Stressful and satisfying aspects of the job, using study-specific items, which were derived from a review of the occupational stress literature and pilot interviews with 16 cancer clinicians. Items were selected for inclusion in the final questionnaire according to predetermined decision rules. To identify and solve any problems in the design of the questionnaire and its administration the booklet of questionnaires was sent to a subset of clinicians for completion and comment. The questionnaire included 34 items about sources of stress and 20 items about sources of satisfaction. Each item was scored 0–3 from 'not at all' to 'a lot', according to the extent to which it contributed to overall job stress/satisfaction.

Procedure

The booklet of questionnaires was sent out with an explanatory letter from the study organisers and a statement of support from the Royal Colleges and Association for Palliative Medicine. One month after the initial mailing, a second mailing was sent out to non-responders, who were given another month in which to complete the questionnaires before the study database was closed.

The survey was strictly confidential and no names were requested. Each subject was assigned a code number by which he or she was identified for the purpose of remailing the non-responders. The key to the code was held by a responsible person who was not involved in the study and the investigators were blind to the identity of those returning the questionnaires.

Statistical methods

Bivariate associations between demographic and job characteristics and specialty were examined using the Fisher exact test or the chi-square test (when there were more than two groups), in order to asses the comparability of the three groups of consultants. Differences in the prevalence of psychiatric disorder (as measured by the GHQ-12) and 'burnout' (as measured by the MBI) according to specialty and perceived adequacy of training were assessed using the chi-square test with Yates' correction. Correlations between the MBI subscales scores and GHQ-12 scores were estimated using the Pearson product moment correlation coefficient.

Factor analysis was used to find out whether the stress and satisfaction items could be aggregated into a more limited set of stress and satisfaction 'factors' based on inter-item correlations. Using principal components factor analysis, factors which independently accounted for more than 5% of the common variance are reported. The mean percentage of items in each factor rated as contributing 'quite a bit' or 'a lot' to overall job stress was calculated as follows. The number of items in each factor scored 2 or 3 was calculated, summed for all the consultants and reported as a percentage of the product of the number of consultants and the number of items in the factor. This number is referred to as the stress factor score. Chi-square tests with Yates' correction were used to examine the relative contribution of the individual stress factors to overall work-related stress, differences across specialties and differences according to perceived adequacy of training. A similar exercise was undertaken for the satisfaction factors.

To find out whether any of the demographic/job characteristics were significantly associated with 'burnout' and psychiatric disorder, logistic regression analyses were carried out. Four separate analyses were carried out using the following dependent variables: 'high' *vs* 'average'/'low' scores on emotional exhaustion and depersonalisation subscales of the MBI, 'low' *vs* 'average'/'high' scores of the personal accomplishment subscale and high GHQ-12 scores indicative of psychiatric disorder. The multiple regression analyses were subsequently repeated using sources of stress and satisfaction as well as all demographic/job characteristics as predictors of 'burnout' and psychiatric disorder. Sources of stress and satisfaction were entered as scores on the four stress factors and four satisfaction factors which had been identified through factor analysis. Because of the large number of variables assessed in the logistic regression analyses, only those with P-values <0.01 were considered significant. Although logistic regression produces odds ratios to reflect the strength of any relationship found, these were converted to relative risks for ease of comprehension. Where the predictor variables were of a continuous type (i.e. mean scores on the stress and satisfaction factors), relative risks were calculated by comparing the upper and lower quartiles. This procedure makes all the relative risk figures comparable.

Results

Response rate

Three hundred and ninety-three out of 476 (83%) consultants returned their questionnaires. These included 60/69 (87%) medical oncologists, 207/253 (82%) clinical oncologists and 126/154 (82%) palliative care specialists. One questionnaire returned by a medical oncologist was only partially completed, leaving 392 questionnaires in the analysis.

Demographic and job characteristics

The three types of cancer clinicians had significantly different job and demographic characteristics (Table I). The palliative care specialists had the highest percentage of women, they were the youngest group of specialists and significantly more of them had been in post for 5 years or less compared with the clinical oncologists and medical oncologists. Four times more palliative care specialists than oncologists worked part-time. The medical oncologists had the lowest percentage of females and significantly more of them held academic posts compared with the clinical oncologists or palliative care

specialists. Significantly more clinical oncologists undertook private practice than medical oncologists or palliative care specialists. Only a minority of all three groups of cancer clinicians were single as opposed to married, cohabiting, divorced or widowed.

Psychiatric disorder

The estimated prevalence of psychiatric disorder from the GHQ-12 was 28%. There were no significant differences in the prevalence of disorder among the medical oncologists (32%), clinical oncologists (28%) and palliative care specialists (25%).

Burnout

Thirty-one per cent of the cancer clinicians reported high levels of emotional exhaustion, which was similar to 33% of the normative sample of 1104 American doctors and nurses defined as having high emotional exhaustion (Maslach and Jackson, 1986). The same proportion of cancer clinicians and the American health professionals reported low personal accomplishment (33%). Significantly fewer UK cancer clinicians reported high levels of depersonalisation compared with the normative sample (23% *vs* 33%, $P<0.0001$). Clinical oncologists had a higher prevalence of emotional exhaustion and low personal accomplishment than palliative care specialists (Table II). They also reported depersonalisation more commonly than either palliative care specialists or medical oncologists.

Relationship between MBI subscales scores and GHQ-12 scores

Scores on the GHQ-12 were correlated with work-related emotional exhaustion scores ($r=0.56$, $P<0.0001$). GHQ-12 scores had a lower correlation with depersonalisation scores ($r=0.34$, $P<0.0001$) and a minimal correlation with personal accomplishment scores ($r=-0.13$, $P=0.004$).

Relationship between demographic/job characteristics, 'burnout' and psychiatric disorder

According to logistic regression analyses, age and specialty were the only independent risk factors for 'burnout' among the eight demographic and job characteristics shown in Table I. Being 55 years or younger was associated with a relative risk of 2.19 (95% confidence interval 1.25–4.09, $P=0.006$) for emotional exhaustion and a relative risk of 3.80 (1.61–9.52, $P=0.002$) for depersonalisation. Being a clinical oncologist rather than a medical oncologist or a palliative care specialist was associated with a relatiye risk of 1.66 (1.21–2.28, $P=0.002$) for emotional exhaustion, a relative risk of 2.59 (1.67–4.10, $P<0.0001$) for depersonalisation and a relative risk of 1.54 (1.12–2.14, $P=0.009$) for low personal accomplishment. None of the demographic or job characteristics predicted psychiatric disorder as measured by the GHQ-12.

Sources of work-related stress

A factor analysis demonstrated that the majority of the 34 sources of stress items could be aggregated into four factors

Table I Demographic and job characteristics of cancer clinicians according to specialty

	Medical oncologists n *(%)*	*Clinical oncologists* n *(%)*	*palliative care specialists* n *(%)*	*Significance of differences (P-values)* *Clinical oncologists vs medical oncologists*	*Medical oncologists vs palliative care specialists*	*Clinical oncologists vs palliative care specialists*
Female	5 (8)	44 (21)	53 (42)	0.03	<0.0001	<0.0001
Single	3 (5)	15 (7)	11 (9)	0.77	0.55	0.68
Age (years)						
⩽35	1 (2)	6 (3)	13 (10)	0.12	0.008	0.03
36–45	27 (46)	107 (52)	58 (46)			
46–55	26 (44)	60 (29)	31 (25)			
>55	5 (8)	34 (16)	24 (19)			
Years in post						
⩽5	18 (30)	58 (28)	70 (55)	0.42	0.007	<0.0001
6–15	30 (51)	93 (45)	40 (32)			
>15	11 (19)	56 (27)	16 (13)			
Academic post	39 (66)	16 (8)	4 (3)	<0.0001	<0.0001	0.1
Part-time (⩽9 sessions)	4 (7)	12 (6)	35 (28)	1.0	0.002	<0.0001
Private practice (⩾1 session)	18 (31)	117 (57)	12 (10)	0.0006	0.0006	<0.0001

Table II Prevalence of 'burnout' (measured by the Maslach Burnout Inventory) according to specialty

Components of 'burnout'	*Medical oncologists* n *(%)*	*Clinical oncologists* n *(%)*	*palliative care specialists* n *(%)*	*Significance of differences (P-values)* *Clinical oncologists vs medical oncologists*	*Medical oncologists vs palliative care specialists*	*Clinical oncologists vs palliative care specialists*
High emotional exhaustion	15 (25)	79 (38)	29 (23)	0.10	0.86	0.006
High depersonalisation	9 (15)	64 (31)	16 (13)	0.03	0.81	0.0003
Low personal accomplishment	20 (34)	78 (38)	31 (25)	0.71	0.25	0.02

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(Table III) using the approach outlined in the statistical methods. A descriptive term was assigned to each of these factors. 'Feeling overloaded and its effect on home life' made the greatest contribution to overall stress, followed by 'having organisational responsibilities and conflicts', then 'dealing with patients' suffering' and lastly 'being involved with treatment toxicity and errors'. The stress factor scores (the mean percentage of items rated as contributing 'quite a bit' or 'a lot' to overall job stress) for these four factors were all significantly different from one another ($P<0.0001$).

The mean scores for the four stress factors according to specialty group are shown in Table IV. The overall pattern was for palliative care specialists to report the lowest mean percentage of items rated 'quite a bit' or 'a lot' for each factor. Clinical oncologists reported significantly higher levels of stress from 'treatment toxicity and errors' and 'dealing with patients' suffering' than medical oncologists. 'Having organisational responsibilities/conflicts' was reported as significantly more stressful by medical oncologists than clinical oncologists.

Sources of work-related satisfaction

The 20 sources of satisfaction items were aggregated into four factors using the same approach as for the stress items (Table V). 'Dealing well with patients and relatives' contributed most to overall job satisfaction, followed by 'having professional status and esteem' and then 'deriving intellectual stimulation' and 'having adequate resources'. The scores for the first three factors were significantly different from one another ($P<0.0001$).

The overall pattern was for clinical oncologists to report the lowest levels of satisfaction for all the factors (Table VI). Palliative care specialists reported the highest levels of satisfaction from 'dealing well with patients and relatives' and from 'having adequate resources'. Medical oncologists reported higher levels of satisfaction from 'deriving intellectual stimulation' than either of the other two groups.

Relationship between job characteristics, sources of stress and satisfaction, 'burnout' and psychiatric disorder

The demographic/job characteristics and sources of stress and satisfaction which were associated with 'burnout' and/or psychiatric disorder at the $P<0.01$ level, according to logistic regression analyses, are shown in Table VII. Emotional exhaustion was associated with high levels of stress from 'being overloaded and its effect on home life' and 'dealing with patients' suffering' and low levels of satisfaction from

Table III Factors describing the main sources of work-related stress

Factor (questionnaire items)	*Percentage of consultants describing each item as contributing 'quite a bit' or 'a lot' to overall job stress*	*Mean percentage of items in factor rated as contributing 'quite a bit' or 'a lot' to overall job stress*
1 Feeling overloaded and its effect on home life		
Having conflicting demands on your time[a]	68	55
Having too great an overall volume of work	65	
Disruption of your home life through long working hours	50	
Disruption of your home life through taking paperwork home	38	
2 Having organisational responsibilities/conflicts		
Having conflicting demands on your time[a]	68	42
Feeling under pressure to meet deadlines	48	
Having a conflict of responsibilities	44	
Having to take on more managerial responsibilities	42	
Uncertainty over the future funding of your unit/institution	35	
Being responsible for the welfare of other staff	15	
3 Dealing with patient's suffering		
Being involved with the emotional distress of patients	36	24
Being involved with the physical suffering of patients	31	
Having to break bad news to patients and relatives	26	
Being unable to control patients' symptoms	20	
Being involved with fatal illness and death	17	
Being unable to cure patients	16	
4 Being involved with treatment toxicity and errors		
Having to make treatment decisions where mistakes can have severe consequences	26	21
Feeling responsible for toxicity caused by treatment you prescribe	21	
Dealing with the threat of being sued for malpractice	15	

[a]This item contributed to two factors.

Table IV Stress factor scores according to specialty

Factor	*Mean percentage of items in factor rated as contributing 'quite a bit' or 'a lot' to overall job stress*			*Significance of differences (P-values)*		
	Medical oncologists (%)	*Clinical oncologists (%)*	*Palliative care specialists (%)*	*Clinical oncologists vs medical oncologists*	*Medical oncologists vs palliative care specialists*	*Clinical oncologists vs palliative care specialists*
1 Feeling overloaded and its effects on home life	58	60	47	0.65	0.01	<0.0001
2 Having organisational responsibilities/conflicts	50	43	36	0.02	<0.0001	0.002
3 Dealing with patients' suffering	22	29	18	0.006	0.22	<0.0001
4 Being involved with treatment toxicity and errors	12	31	7	<0.0001	0.08	<0.0001

Table V Factors describing the main sources of work-related satisfaction

Factor (questionnaire items)	*Percentage of consultants describing each item as contributing 'quite a bit' or 'a lot' to overall job satisfaction*	*Mean percentage of items in factor rated as contributing 'quite a bit' or 'a lot' to overall job satisfaction*
1 Dealing well with patients and relatives		
Having good relationships with patients	97	85
Helping patients through controlling their symptoms	93	
Feeling you deal well with relatives	79	
Feeling you manage death and dying well for patients	71	
2 Having professional status/esteem		
Being perceived to do your job well by colleagues	81	72
Having a high level of responsibility	80	
Having a high level of autonomy	66	
Being able to bring about positive change in your unit/institution	62	
3 Deriving intellectual stimulation		
Deriving intellectual stimulation from teaching	53	44
Being involved in activities which contribute to the development of your profession	49	
Deriving intellectual stimulation from research	38	
Having opportunities for personal learning (developing clinical/research/management skills)	38	
4 Having adequate resources		
Feeling you have the staff necessary to do a good job	54	43
Feeling you have adequate facilities to do a good job	45	
Feeling you have adequate financial resources to do a good job	34	

Table VI Satisfaction factor scores according to specialty

Factor	*Mean percentage of items in factor rated as contributing 'quite a bit' or 'a lot' to overall job satisfaction*			*Significance of differences (P-values)*		
	Medical oncologists (%)	*Clinical oncologists (%)*	*Palliative care specialists (%)*	*Clinical oncologists vs medical oncologists*	*Medical oncologists vs palliative care specialists*	*Clinical oncologists vs palliative care specialists*
1 Dealing well with patients and relatives	84	80	93	0.20	<0.0001	<0.0001
2 Having professional status/esteem	78	68	76	0.007	0.76	0.002
3 Deriving intellectual stimulation	60	40	44	<0.0001	<0.0001	0.14
4 Having adequate resources	46	32	62	0.001	0.0005	<0.0001

Table VII Job characteristics and sources of stress and satisfaction factors associated with Maslach Burnout Inventory and General Health Questionnaire scores indicating 'burnout' and psychiatric disorder

	'High' emotional exhaustion Relative risk (95% confidence interval)	*'High' depersonalisation Relative risk (95% confidence interval)*	*'Low' personal accomplishment Relative risk (95% confidence interval)*	*Psychiatric disorder Relative risk (95% confidence interval)*
Stress factors				
1 Overload	3.78 (2.56–5.61)**	2.28 (1.54–3.52)**		2.42 (1.72–3.45)**
2 Organisational responsibilities/ conflict				
3 Patients' suffering	1.63 (1.24–2.17)**	1.97 (1.38–2.85)**		
4 Treatment toxicity/errors			1.52 (1.14–2.03)*	1.72 (1.21–2.49)*
Satisfaction factors				
1 Dealing well with patients		0.44 (0.27–0.71)**	0.41 (0.27–0.60)**	
2 Professional status/esteem			0.65 (0.50–0.83)**	
3 Intellectual stimulation				0.66 (0.51–0.85)*
4 Adequate resources	0.56 (0.39–0.79)*			
Job factors				
1 Specialty group: clinical oncologists		1.92 (1.21–3.10)*		
2 Part-time		3.60 (1.68–8.10)**		

*$P<0.01$, **$P<0.001$.

'having adequate resources'. Depersonalisation was similarly associated with high levels of stress from 'being overloaded' and 'dealing with patients' suffering' as well as low levels of satisfaction from 'dealing well with patients and relatives'. In addition, being a clinical oncologist and working part-time were independent risk factors for depersonalisation. Low personal accomplishment was associated with stress from 'being involved with treatment toxicity and errors' and low levels of satisfaction from 'dealing well with patients and relatives' and from 'having professional status and esteem'.

High GHQ scores indicative of psychiatric disorder were associated with high levels of stress from 'feeling overloaded' and from 'being involved with treatment toxicity and errors' as well as low levels of satisfaction from 'having professional status and esteem'.

Clinician judgement about adequacy of training

Eighty-nine per cent of the clinicians judged that they had received adequate training in the treatment of disease and symptom control. In contrast, only 56% considered they had received sufficient training in communication skills and only 20% thought they had been sufficiently trained in management skills. Clinicians who felt insufficiently trained in communication skills had a higher prevalence of depersonalisation (30% *vs* 17%, $P = 0.004$) and low personal accomplishment (43% *vs* 25%, $P = 0.0004$) than those who perceived themselves to be sufficiently trained. The prevalence of psychiatric disorder and emotional exhaustion among those who felt sufficiently and insufficiently trained in communication skills did not differ significantly (32% *vs* 24%, $P = 0.14$, and 35% *vs* 28%, $P = 0.2$, respectively).

Clinicians who felt insufficiently trained in management skills reported more emotional exhaustion (34% *vs* 22%, $P = 0.05$) and low personal accomplishment (35% *vs* 23%, $P = 0.05$) than those who felt sufficiently trained. The prevalence of depersonalisation among those who felt insufficiently and sufficiently trained did not differ significantly (25% *vs* 15%, $P = 0.1$). Thirty per cent of clinicians who perceived themselves to be insufficiently trained in management skills were probable cases of psychiatric disorder compared with only 18% of those feeling sufficiently trained ($P = 0.04$).

Among clinicians who felt insufficiently trained in communication skills stress factor scores for 'dealing with patients' suffering' (29% *vs* 21%, $P < 0.0001$) and 'being involved in treatment toxicity and errors' (26% *vs* 17%, $P = 0.0003$) were higher than among those who felt sufficiently trained. This group also reported less satisfaction from 'having professional status' (68% *vs* 76%, $P = 0.0004$) and 'deriving intellectual stimulation (41% *vs* 48%, $P = 0.0071$).

Feeling insufficiently trained in management skills was associated with higher levels of stress from 'dealing with patients' suffering' (25% *vs* 17%, $P = 0.0004$) and 'having organisational responsibilities/conflicts' (43% *vs* 37%, $P = 0.01$). Insufficient management skills training was also associated with lower levels of satisfaction from 'having professional status and esteem' (71% *vs* 79%, $P = 0.004$).

Discussion

The study of 'burnout' generally is in its infancy and 'stress' research overall is hampered by a lack of integrative theory. In broad terms, however, it is accepted that work-related distress and more pervasive psychiatric disorder are likely to occur when the perceived demands of the working environment (sources of stress) exceed the individual's perception of his or her resources to meet those demands (Lazarus and Folkman, 1984).

The prevalence of psychiatric disorder (28%) found among cancer clinicians in this national survey is similar to the level of 29% reported among British medical students (Firth, 1986) and 30% reported among British junior house officers (Firth-Cozens, 1987) using the same assessment method. This challenges the notion that the pre-registration year is a time of particular distress for doctors (McCue, 1985). The prevalence of psychiatric disorder among the cancer clinicians is also similar to that for accident and emergency medical and nursing staff (32%) reported in a British study using the same assessment method (Hetherington, 1993).

The levels of emotional exhaustion and personal accomplishment for this group of cancer clinicians are broadly similar to the published norms for American doctors and nurses (Maslach and Jackson, 1986) and to levels reported for North American family practitioners (Lemkau *et al.*, 1988; Snibbe *et al.*, 1989) and infectious disease physicians (Deckard *et al.*, 1992). However, the British cancer clinicians report less depersonalisation than the groups of American health professionals who have been studied.

Contrary to popular belief, therefore, the levels of distress reported by the cancer clinicians in this study do not appear to be uniquely high in relation to that of other medical professionals. Among cancer clinicians, clinical oncologists appear to experience the most work-related distress, related to high stress and low satisfaction from work-related sources, but they are not at any greater risk of psychiatric disorder than medical oncologists or palliative care specialists. Palliative care doctors describe the lowest levels of 'burnout' and stress, together with high levels of satisfaction from all the work-related sources studied. Similar findings emerge when comparing 'burnout' among palliative care nurses with that found among other groups of hospital and community-based nurses (Dunne and Jenkins, 1991; Mallett *et al.*, 1991).

The finding that younger age is a risk factor for components of 'burnout' is counter-intuitive and challenges the notion that 'burnout' is a cumulative process for cancer clinicians. This inverse relationship between 'burnout' and age has also been demonstrated among general practitioners (Winefield and Anstey, 1991) and other occupational groups including pharmacists (Jackson *et al.*, 1993).

The sources of work-related stress identified by the cancer clinicians in this study appear to be those generic to all doctors involved in clinical work, and indeed other professionals involved in cancer care. Being overloaded and its effect on home life, dealing with patients' suffering and being involved with treatment toxicity and errors have been reported as important by junior doctors (Firth-Cozens, 1987), general practitioners (Cooper *et al.*, 1989), doctors generally (Bates and Moore, 1975) and cancer health professionals of all disciplines (Cull, 1991). Having organisational responsibilities/conflicts emerged as the second most important source of stress for the cancer clinicians. This has not been highlighted previously among doctors and may reflect the involvement of the senior clinicians in this study in the ongoing changes in health care delivery in this country. Despite being identified as an important source of stress, it is interesting that this factor did not appear to increase the risk of 'burnout' or psychiatric disorder.

Dealing with patients' suffering, including fatal illness and dying, was rated by the cancer clinicians as less stressful than overload and organisational responsibilities/conflict. In fact, dealing well with patients and relatives was the most important source of job satisfaction. This exemplifies the 'double-edged' nature of stress, according to which a task can be stressful if done badly, but rewarding if done well. The study findings suggest the value of communication skills training in reducing the stress and enhancing the satisfaction of dealing with patients, as well as reducing the stress of dealing with treatment toxicity and errors and enhancing professional esteem. Training in management skills appears to reduce the stress of overload and increase professional esteem. Equipping clinicians with these skills should therefore increase personal competence in meeting the demands of the job and reduce levels of 'burnout' and psychiatric disorder.

The strong associations between sources of stress and satisfaction on the one hand and 'burnout' and psychiatric disorder on the other could reflect the fact that distressed cancer clinicians develop negative perceptions about their work. If this were the underlying mechanism then it is likely

that the associations would be general and non-specific. The relationships demonstrated in the study were, however, highly specific with particular sources of stress and satisfaction associated with particular aspects of 'burnout' and psychiatric disorder. This suggests that the occupational factors have a causal role in the distress experienced by cancer clinicians. It seems likely that these occupational risk factors precipitate 'burnout' and psychiatric disorder in those who are psychologically vulnerable. Family psychiatric history, childhood experiences of illness, death and emotional neglect and particular personality traits have all been described as causal factors for distress among doctors generally (Johnson, 1991; Firth-Cozens, 1992). Changing the criteria for selection of cancer clinicians to exclude those who are vulnerable to the stress of cancer care might reduce 'burnout' and psychiatric disorder. However, studies of junior doctors suggest this may run the risk of excluding those who are more empathic and self-critical and thus have an important contribution to make to medicine albeit at a personal cost (Firth-Cozens, 1989).

A more positive and pragmatic approach to reducing the risk of 'burnout' and psychiatric disorder among cancer clinicians is to address one of the main occupational risk factors currently inherent in the practice of oncology, namely overload. Clinical oncologists in the UK are treating, on average, two and a half times more patients per year than their colleagues in the major European countries or the USA (The Board of the Faculty of Clinical Oncology, 1991). This suggests that the report of overload reflects a real excess of workload. It follows that increasing resources to cancer care would help to reduce 'burnout' and psychiatric disorder among cancer clinicians. The need for an increased number of consultants in both clinical and medical oncology has recently been stressed by the relevant Royal Colleges in their representation to the Expert Advisory Group on Cancer, and is implicit in the recommendations of that group (Expert Advisory Group on Cancer to the Chief Medical Officers of England and Wales, 1994). As already highlighted, to tackle the problem of 'burnout' and psychiatric disorder among cancer clinicians comprehensively, there needs to be a parallel commitment to improving their training in communication and management skills.

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References

BATES F AND MOORE B. (1975). Stress in hospital personnel. *Med. J. Austr.*, 15, 765.

BMA. (1992). *Stress and the Medical Profession*. British Medical Association: London.

BMA. (1993). *The Morbidity and Mortality of the Medical Profession*. British Medical Association Board of Science and Education: London.

CHERNISS C. (1980). Staff burnout: Job stress in human services. Sage Publications: Beverley Hill.

COOPER C, ROUT U AND FARAGHER B. (1989). Mental health, job satisfaction, and job stress among general practitioners. *Br. Med. J.*, 298, 366–370.

CULL A. (1991). Studying stress in care givers: art or science. *Br. J. Cancer*, 64, 981–984.

DECKARD G, HICKS L AND HAMORY B. (1992). The occurrence and distribution of burnout among infectious diseases physicians. *J. Infect. Dis.*, 165, 224–228.

DELVAUX N, RAZAVI D AND FARVACQUES C. (1988). Cancer care – a stress for health professionals. *Soc. Sci. Med.*, 27, 159–166.

DUNNE J AND JENKINS L. (1991). Stress and coping in Macmillan nurses: a study in comparative context. Cancer Relief Macmillan Fund: London.

EXPERT ADVISORY GROUP ON CANCER TO THE CHIEF MEDICAL OFFICERS OF ENGLAND AND WALES. (1994). Consultative document: a policy framework for commissioning cancer services. Department of Health: London.

FIRTH J. (1986). Levels and sources of stress in medical students. *Br. Med. J.*, 292, 533–536.

FIRTH-COZENS J. (1987). Emotional distress in junior house officers. *Br. Med. J.*, 295, 533–536.

FIRTH-COZENS J. (1989). Stress in medical undergraduates and house officers. *Br. J. Hosp. Med.*, 41, 161–164.

FIRTH-COZENS J. (1992). The role of early family experience in the perception of organisational stress – fusing clinical and organisational perspectives. *J. Occ. Org. Psychol.*, 65, 61–75.

FREUDENBERGER H. (1974). Staff burnout. *J. Social Issues*, 30, 159–165.

GOLDBERG D AND WILLIAMS P. (1988). *A Users Guide to the General Health Questionnaire*. NFER-Nelson Publishing: Windsor, Berkshire.

HETHERINGTON A. (1993). The extent and source of stress in emergency care. Cranfield University, Report No. 9110.

JACKSON R, BARNETT C AND STAJICH G. (1993). An analysis of burnout among school of pharmacy faculty. *Am. Pharmaceutical Education*, 57, 9–17.

JOHNSON W. (1991). Predisposition to emotional distress and psychiatric illness among doctors: the role of unconscious and experiential factors. *Br. J. Med. Psychol.*, 64, 317–329.

LAZARUS R AND FOLKMAN S. (1984). *Stress, Appraisal and Coping*. Springer: New York.

LEMKAU J, PURDY R, RAFFERTY J AND RUDISILL J. (1988). Correlates of burnout among family practice residents. *J. Med. Educ.*, 63, 682–691.

MALLETT K, PRICE H, JURS S AND SLENKER S. (1991). Relationship among burnout, death anxiety and social support in hospice and critical care nurses. *Psychol. Reports*, 68, 1347–1359.

MCCUE J. (1985). The distress of internship. *N. Engl. J. Med.*, 312, 449–452.

MASLACH C AND JACKSON S. (1986). *Maslach Burnout Inventory*. Consulting Psychologist's Press: Palo Alto, CA.

OPCS (1986). Occupational mortality 1979–80, 1982–83. Office of Population and Census Surveys: London.

RUCINSKI J AND CYBULSKA E. (1985). Mentally ill doctors. *Br. J. Hosp. Med.*, 33, 90–94.

SNIBBE J, RADCLIFFE T, WEISBERGER C, RICHARDS M AND KELLY J. (1989). Burnout among primary care physicians and mental health professionals in a managed health care setting. *Psychol. Reports*, 65, 775–780.

THE BOARD OF THE FACULTY OF CLINICAL ONCOLOGY. (1991). *Medical Manpower and Workload in Clinical Oncology in the United Kingdom*. Royal College of Radiologists: London.

WHIPPEN D AND CANELLOS G. (1991). Burnout syndrome in the practice of oncology: results of a random survey of 1,000 oncologists. *J. Clin. Oncol.*, 9, 1916–1920.

WINEFIELD H AND ANSTEY T. (1991). Job stress in general practice: practitioner age, sex and attitudes as predictors. *Fam. Pract.*, 8, 140–144.